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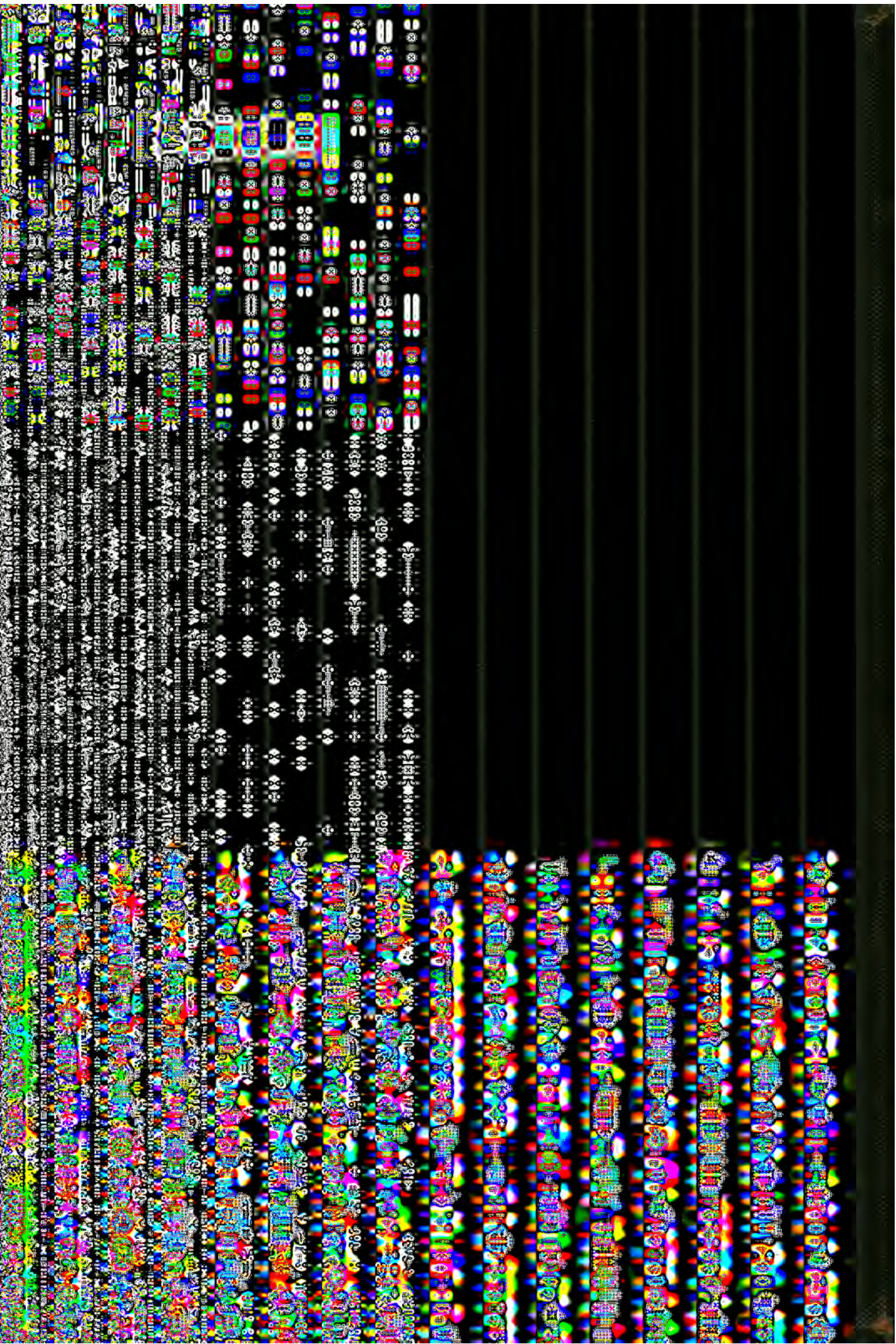
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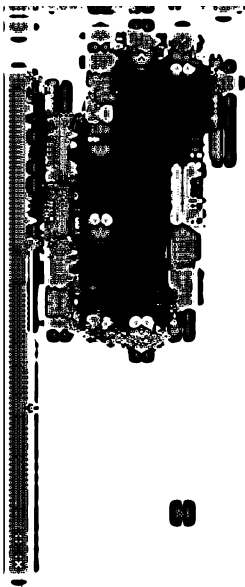
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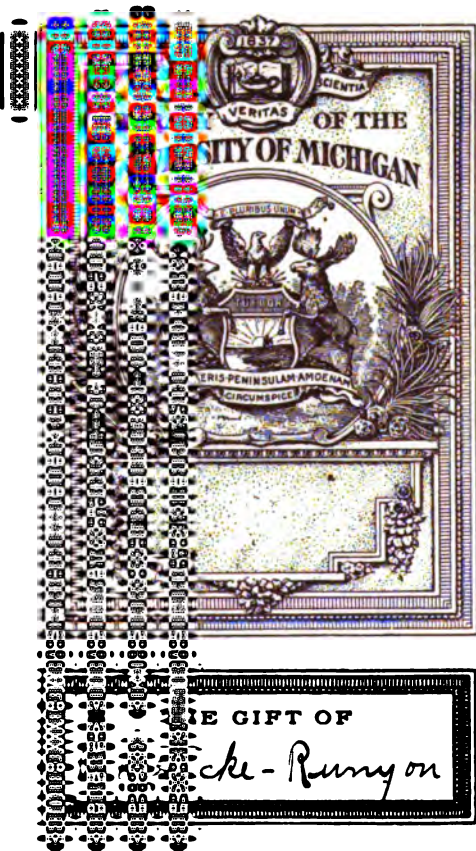
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DISEASES OF THE SKIN

DISEASES OF THE SKIN

WITH SPECIAL REFERENCE TO PRINCIPLES OF TREATMENT

FOR THE USE OF

ADVANCED STUDENTS AND GENERAL
PRACTITIONERS

BY

HENRY M. DEARBORN, M.D.

Late Professor of Dermatology, New York Homœopathic Medical College and Hospital; Late
Professor of Principles of Medicine and Clinical Professor of Dermatology, New
York Medical College and Hospital for Women; etc., etc.

SECOND EDITION

REVISED, ENLARGED AND EDITED BY

FREDERICK M. DEARBORN, A.B., M.D.

Dermatologist to the Hahnemann Hospital; to the Metropolitan Hospital (Department of Public Charities); to the Laura Franklin Free Hospital for Children; to the Children's Hospital of the Five Points House of Industry, and to the Out-Patient Department of the Flower Hospital; Assistant Attending Dermatologist to the Flower Hospital; Consulting Dermatologist to the Hospital of the New York Medical College and Hospital for Women; to the St. Mary's Hospital (Passaic, N. J.) and to the Jamaica Hospital (Jamaica, N. Y.); Lecturer on Dermatology, New York Homœopathic Medical College and Hospital; Lecturer on Dermatology, New York Medical College and Hospital for Women.

WITH ONE HUNDRED AND THIRTY-FIVE ILLUSTRATIONS
INCLUDING NINETY-EIGHT FULL PAGE ENGRAVINGS

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**This Second Edition
is dedicated by the
Editor**

**To the memory of her who
with loving interest
watched the progress of this work**

PREFACE TO THE SECOND EDITION

WHILE every attempt has been made to bring this edition up to date in all departments, none of the original features have been shelved, and conciseness and brevity are, as before, coupled with a self-evident system of simplicity. No better explanation of the objects in view in the preparation of this treatise can be offered than the following paragraph from the preface to the first edition:

"The best method of studying disease is that which yields the most practical information as to the causes, nature, course and symptoms of a given malady and the therapeutic measures required for its safe and speedy relief or cure. The aim in the following pages has been to furnish the essentials of skin diseases in such form as to be clear and accessible to the student and general practitioner; especially as indicating principles or means of treatment. Hence etiology, symptomatology and diagnosis are given more prominence than pathology, not because the latter is lacking in interest, but rather that it is of least importance in a work not designed for the use of specialists."

In the preparation of this edition, every page has been revised and many portions rewritten, particularly those sections dealing with pathology and treatment. The same general classification is retained, although a number of diseases are assigned to different groups because further investigation has established their real nature or because original research has demonstrated something specific in their character. Possibly one of the most important additions to this edition will be found under the general remarks on treatment in Part I, and deals with phototherapy, radiotherapy and other physical agents. A further discussion of these subjects will be found in the sections devoted to the treatment of those diseases which call for these methods. Part III is added to embrace a brief consideration of internal therapeutics, as shown by a discussion of the action of drugs. The remedies are arranged alphabetically, and being all grouped together make the matter of reference much simpler and obviate the necessity of frequent repetition. Again quoting the preface to the original edition: "It is hoped that a brief statement of the general sphere of action of drugs may show the adaptability of some remedy to one of the varied assemblages of the phenomena of disease presenting from time to time; most of the indications given have been verified, many of them by the author. Some of the illustrations of cutaneous diseases serve the double purpose

of depicting objective lesions and the principles of treatment related to their cure. An ideal in therapeutics has been striven for, though far from attained, yet sufficiently demonstrated in practice to justify the belief in its practical utility in the art of dermatology."

Seventy new illustrations are presented in this edition, the majority being from photographs taken by the editor, and the following new subjects are introduced: Radiotherapy, Phototherapy, High Tension and Frequency Currents, Becquerel Rays, Vibration and Mechanical Vibratory Massage, Monilethrix, Lepothrix, Tinea Nodosa, Röntgen-ray Dermatitis, Dermatitis Gangrenosa, Varicose Ulcer, Atrophia Cutis, Atrophia Senilis, Kraurosis Vulvæ, Echinococcus, Demodex Folliculorum, Dhobie Itch, Blastomycosis, Myringomycosis, Colchicum, Cuprum Arsenicosum, and Fagopyrum, while many other sections have been completely rewritten.

The editor desires to acknowledge the courtesy of those colleagues who have assisted in any way in the revision of this work, especially the resident physicians of the metropolitan hospitals which the editor attends. Frequent reference has been made to the standard works on diseases of the skin, both of foreign and American authorship, also to the current medical journals, especially to the *Journal of Cutaneous and Venereal Diseases*.

It is hoped that the form and appearance of this volume, the mechanical changes, and such additions as a lapse of three years demands, will meet the approval of the profession.

FREDERICK M. DEARBORN.

NEW YORK CITY,
146 WEST 57TH STREET.

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PART I

GENERAL PRINCIPLES

ANATOMY

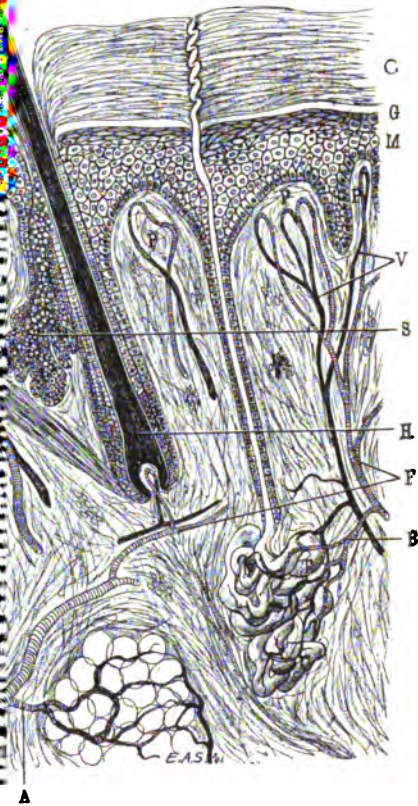
THE skin is an organ complex in structure and endowed with active and passive functions. As a fibro-elastic membrane it affords passive covering and protection to the other tissues with which it is intimately related on the one side, and receives impressions from the outer world to which it is ever exposed on the other.

The skin beautifies the human form by giving roundness to the angles and curves of the body, and for this and other purposes it varies in thickness in different regions. It is the thickest on the buttocks, the palms of the hands and soles of the feet, and thinnest on the eyelids and prepuce. Generally where the areolar tissue is dense and considerable adipose deposit normally exists the attachment of the skin to the parts beneath is close and firm, and its mobility is limited. Where mobility is essential, as around the joints, there is little or no fat, and the areolar tissue is loose.

The most external layers of the skin are composed of epithelial cells. The innermost layers contain protoplasmic material, also pigment, which gives color to the skin in varying degrees in different races, different individuals, and under different circumstances. The outer layers are transparent, flattened cells, which, as they approach the surface, shrivel up into polymorphous scales, and are constantly, and usually invisibly, thrown off, and as constantly renewed from within. Thus the epithelial covering of the skin in health is not only kept in repair by its own in-dwelling protoplasm, but by the comparative impermeability of its external layers aided by a natural secretion of the skin, which continually anoints its surface; it is a passive barrier to a too rapid loss of fluids from the tissues within and, in a great measure, protects from irritants, variations in temperature, and the invasions of bacteria from without. Within the meshes of this enveloping membrane and forming an integral part of it are structures which give the skin capacity for active, important and varied functions. When fully developed the skin thus becomes an organ of sensation, of definite secretion, of excretion, of absorption, and by co-ordinate action a regulator of the systemic temperature and an adjuster of the gaseous elements of the tissues. No other organ in the body has so many functions to perform, and none is so continuously

MY

ce the fact that the skin is peculiarly
A of the face may be said to reflect
of body and mind. Here the ob-
th or disease. The pallor of exhaus-
er or of unusual vigor, the shadows
dissipation, the play of the emotions
of the face, and lend significance to



THE HUMAN SKIN.

dermis. *R*, Reticular layer of the corium.
Mucous layer of the epidermis. *G*, Granular
er of the epidermis. *S*, Sebaceous Gland.
V, Tactile corpuscle. *A*, *B*, *F*, Capillaries
of the hair and papillæ of the corium. *V*,
Erector pili muscle. (Diagrammatic.)

ctions are essential to the life of the
kidney, be deprived of those organs
s, and yet may enjoy for a long time
as of the skin be long suspended, or
destroyed, health is impossible, life

the changes produced in the skin
 edies, a knowledge of the anatomy
 With the aid of the microscope, the
 tant organic parts, the *corium* and
 parts, termed the "appendages of the
 ads, hairs, nails and pigment. The
 s, nerves and muscles. The corium
 by the continuous deposit of fat in
 ring foetal life, the subcutaneous
 aches, therefore, that this is a part
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 ed as a separate layer of the skin.

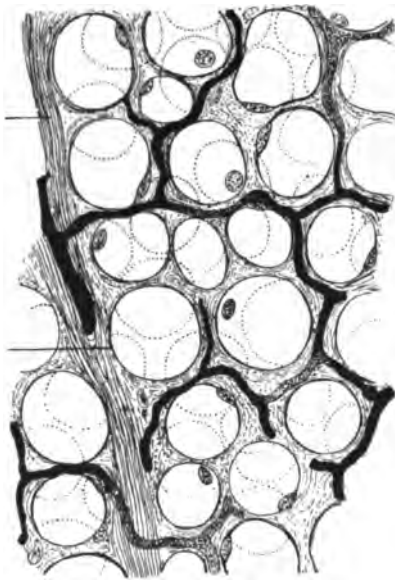


FIG. 2.—SUBCUTANEOUS FAT TISSUE.

B, bundles of fibrous connective tissue;
C, capsulated fat-globules with nuclei.
 Magnified about 500 diameters. (Dia-
 grammatic after Heitzmann.)

vessels and lymphatics, and assist
 ded in the subcutaneous tissue are
 r-seated hair follicles. The blood-
 ge and send off branches to the
 ains lymphatics and nerves. Some
 corpuscles. The subcutaneous tissue
 plumpness to the body and serves as

a double cushion—first to the parts beneath which are liable to pressure, and, second, to the more delicate corium externally, as well as the appendages seated within and passing through both layers. In starvation and wasting diseases the contents of the oil globules disappear, leaving the cell-wall intact. These rapidly refill again with the return of nutrition. An abnormal production and deposit of fat leads to obesity, so that the subcutaneous tissue may become an inch or more thick.

CORIUM.—The corium (2, Fig. 1) is the most important portion of the skin. It is composed of a closely arranged network of white fibrous tissue, with yellow elastic and muscular fibres in intimate association. The inter-fascicular spaces are smaller than in the subcutaneous tissue, and lessen in size towards the surface. They contain lymphoid corpuscles, connective tissue cells and oil globules. The corium is abundantly supplied with blood-vessels, lymphatics and nerves. Its thickness varies in different individuals and on different parts of the body. In the thickest portions, as over the soles of the feet and the nates, its substance is penetrated by columns of fat heretofore mentioned.

An arbitrary division of the corium is usually made into two layers, the lower or reticular layer and the upper or papillary layer. The *reticular* layer (*R*, Fig. 1) is composed of white fibrous tissue, which, in the deepest portion, separates in bundles without division, forming a distinct net; but, as they proceed upwards, the bundles of tissue divide and subdivide, until they reach the upper layer and there form an interlacement by numbers of single fibrillæ. The larger spaces in the reticular layer are filled with fatty tissue, blood-vessels, nerves, lymphatics, the outwardly opening sudoriparous ducts and deeper hair follicles. The smaller spaces contain connective tissue, corpuscles and wandering cells.

The *papillary* layer is distinguished from the lower layer by its more intricate structure. The inter-fascicular spaces are so minute in places as to present a homogeneous appearance. The superficial surface is made uneven by countless projections called the papillæ (*P*, Fig. 1) of the corium, which dovetail with the downward growths from the epidermis. The papillæ are simple when there is one tuft or compound, when two or more projections spring from a single base. They may be conical, club-shaped, or square. They vary also in number and size in different regions. They are most highly developed and numerous on the tips of the fingers, palms of the hands, soles of the feet, the nipples, clitoris, glans penis, and labia minora. Meissner found four hundred in a square line at the tip of the finger, and it is estimated that the whole skin contains one hundred and fifty to two hundred millions.

The importance of the papillæ is due to their being the residence of the terminal expansions of the cutaneous nerves and vessels. The vascular papillæ are supplied with afferent arterioles (plexus) and an efferent vein. The nervous papillæ contain medullated nerve fibres and one or more tactile corpuscles. Occasionally a papilla is provided with both blood-vessels and

nerves. The papillæ of the corium are separated from the epidermis by a thin basement substance.

EPIDERMIS.—The epidermis, cuticle or scurf skin (3, Fig. 1), is the most external layer of the skin. It is entirely cellular in structure and contains no blood-vessels, and only a few nerves in the innermost part. The junction between the corium and epidermis is nearly a straight line at about the middle period of foetal life. During the latter part of foetal life the epidermis grows downward by linear processes into the corium and, as the capillaries in the papillæ develop, centres of nutrition are established for the epidermis. The full development and inter-relations of the papillæ and epidermis, however, are not attained until after birth. The minute furrows on the surface of the skin, especially noticeable on the back of the hand, are due to the depressions of the epidermis between the papillæ. The coarser furrows, as seen upon the back of the neck, extensor surfaces of the joints, forehead and other parts of the face, are due to repeated tensions or muscular tractions of the skin. In origin the epidermis is quite independent of the corium. It has its own ectoderm, and is not regenerated after complete loss of this matrix.

The epidermis is divided into three layers, the mucous layer, the granular layer, and the corneous layer.

The *stratum mucosum*, the mucous layer, the prickle layer, rete Malphigii (*M*; Fig. 1), is situated immediately above the papillary layer of the corium, and is moulded by its inter-papillary projections accurately to the roughened surface of the corium. It is composed of layers of nucleated cells. The lower strata of cells are small and oblong with oval nuclei, which are surrounded by granular protoplasm; their long axis is perpendicular to the surface of the corium; they have no cell-wall, and sometimes these strata appear a mass of protoplasm with scattered nuclei. The cells of the next few rows are larger, cuboid in form, with well-defined nuclei and a distinct cell-wall. They contain granular and pigmentary matter. The more superficial rows of the mucous layer are made up of still larger cells, more granular, and flattened; and, generally, their axes assume a horizontal position to the cutaneous surface.

All the cells of the mucous layer have characteristic protoplasmic processes, which unite the cells to each other, and are called prickles. Hence the name, prickle-cells or prickle layer, given by some authorities to this part of the epidermis. The prickle processes unite the cells firmly, but at the same time the body of epithelia are kept separated from each other by the so-called cement substance of the skin; which substance also permits the free passage of nutritive material from the papillæ of the corium, the ingrowth of nerve-threads, the immigration of white blood corpuscles, and the counter-flow of lymph inwards to the inter-papillary depressions, thence to the lymph vessels of the corium. The epidermis contains no lymph vessels proper and no blood-vessels.

During embryonic life the appendages of the skin are formed by the nutritive processes of the vitalized protoplasm of this part of the epidermis;

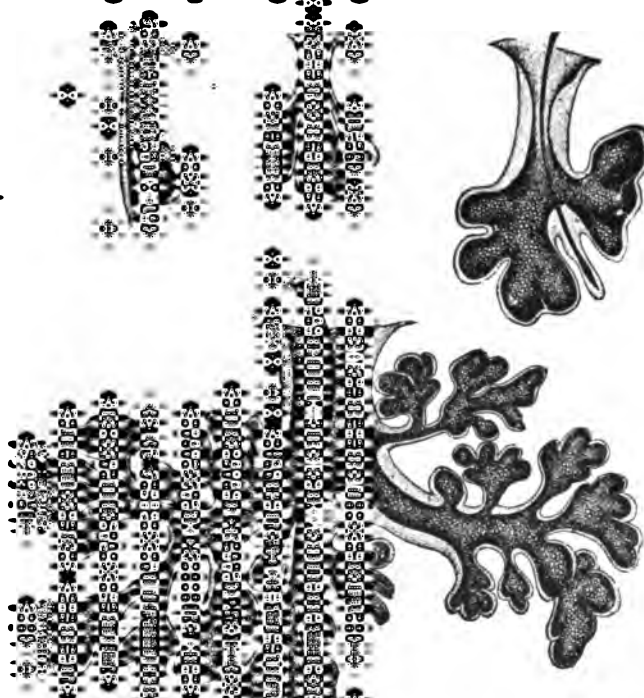
and, after birth, they are the source of the organic material of all physiological or pathological secretions.

The *stratum granulosum*, the granular layer (*G*, Fig. 1), is made up of one to three rows of granular cells arranged next to the prickle cells of the mucous layer. In disease this layer may be increased to four or five rows of cells. They are attached to each other by short threads, which make the inter-cellular spaces much narrower than in the mucous layer, hence, nutritive material is only sparingly supplied to these epithelia. The cells of this layer are filled almost entirely with granular matter, to which Waldeyer has given the name of *kerato-hyalin*. This substance, which first appears in isolated granules near the nuclei of some of the cells of the prickle layer, is greatly increased in and characterizes the granular layer. Unna believes that to this layer the white race owes the color of its skin, and supports this belief by the fact that, before the appearance of the granular layer during foetal life, the outer portion of the skin is transparent, so the blood-vessels of the corium can be seen through it, and also, that the color at the border of the lips and the nail beds is due to the absence of the granular layer in these parts throughout life. The changes which occur in the cells of the granular layer, as they are progressively forced outward from the mucous layer, are necessary to further changes in the external layer of the epidermis, known as cornification.

The *stratum corneum*, the corneous layer, the horny layer (*C*, Fig. 1), is the external layer of the epidermis and of the skin. By rapid changes the outermost cells of the granular layer are transformed (by apparent melting of their granules into the surrounding cell protoplasm) into clear, transparent epithelia. The first two or three rows of cells, owing to their appearance under the microscope, are sometimes called the *stratum lucidum*. But, as they represent a stage in cornification, it does not seem wise to distinguish them as a separate layer. More externally, the cells are arranged in polygonal plates, with shrivelled nuclei and rudimentary threads, which still serve to connect the frame-work of cells with each other. Still nearer the surface the cells become lifeless, horn-like shells, lying parallel to the cutaneous surface, the outer rows wrinkled and curled up, preparatory to being shed. According to Unna, cornification of the epidermis is not a complete process, but consists of an alteration of the periphery and connecting threads of the cells into horny tissue, which, after digestion of the central part of the cells, presents a honeycomb-like structure. No traces of the inter-cellular canals are found in the corneous layer. The hard, dry character of the cells of this layer is due to the presence of *keratin*, which is a very hard and resistant substance.

SEBACEOUS GLANDS.—The sebaceous glands originate during the third month of foetal life from the mucous layer of the epidermis, which, from multiplication of the epithelia downwards, form the gland (*S*, Fig. 1). They are found imbedded in the corium everywhere except in the soles of the feet, palms of the hands, and the dorsal surfaces of the last phalanges of the fingers

simple or compound, and lined with substance called sebum, which is fatty degeneration and rupture of short and end in the hair follicles divided into three groups according to "the glands of the hair follicles," of the body, where they are very follicles into which they discharge. The *second* group are chiefly the skin, or those portions supplied with nerves in size and more complex than directly on the cutaneous surface. Each follicle appears to be placed as an



of the Second Class.

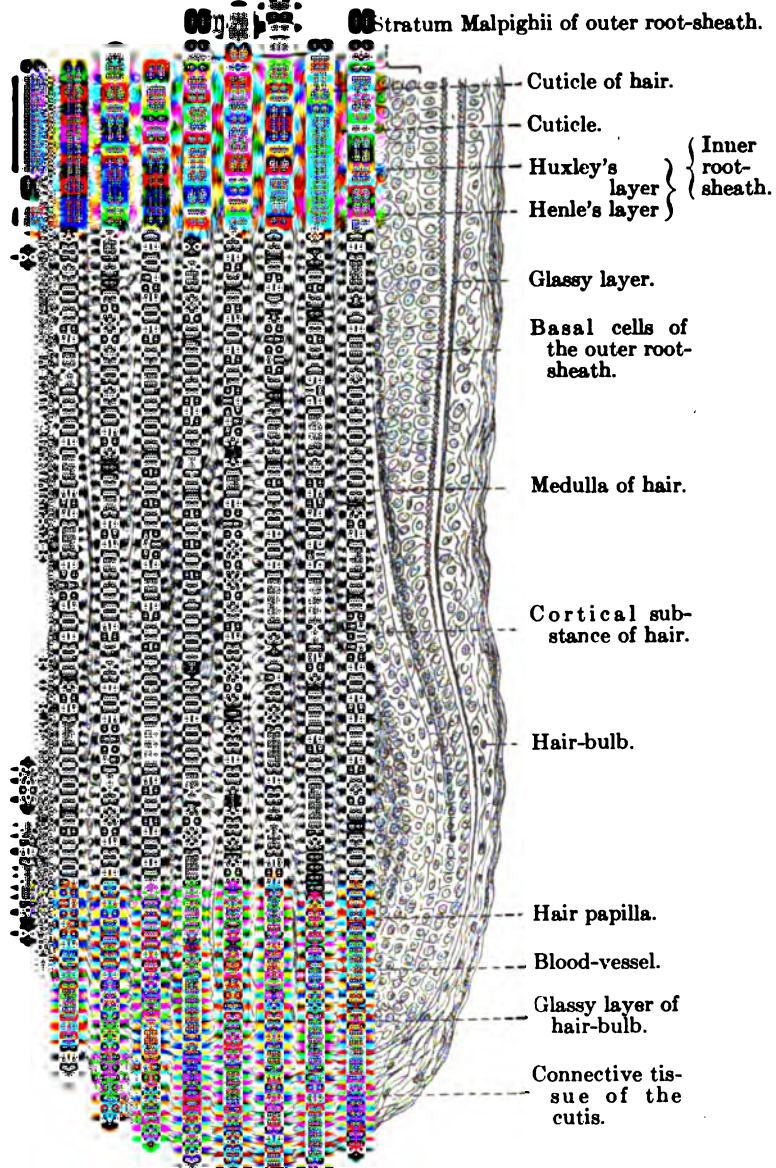
are limited in number and are uncommonly found in the areola of the nipple, and on the internal surface of the breast. The discharge of sebum is facilitated by the action of the muscles. The sweat glands, coil glands.—The sweat gland consists of a blind extremity coiled several

times upon itself and imbedded in the subcutaneous tissue; thence the tube passes as a spiral duct through the other layers of the skin to the surface of the epidermis, terminating in a funnel-shaped opening or pore, which in many places can be seen with the naked eye. The sweat glands appear to originate subsequent to the third month of foetal life, by solid growths of epithelia from the mucous layer of the epidermis downwards into the deeper tissues, where they coil upon themselves; and, in the course of development, the central part liquefies, forming a tube. Unna believes that the true duct ends at the surface of the corium (or about the plane from which the solid growth began), and that the remaining portion of the tube outward is a common outlet for exudations from the interstices of the epidermis and for the sweat. The sudoriparous glands are simple in structure. The outer coat is continuous with the basement membrane of the corium; the middle or epithelial coat is continuous with the deeper layers of the stratum mucosum; the inner coat, or lining, is a delicate cuticle. The sweat glands are each surrounded by a sheath of connective tissue and fat cells, which support and hold the tubes in position. The sudoriparous glands are present in great numbers in all parts of the skin, except the colored border of the lips, the glans penis, the inner surface of the prepuce, and the clitoris. They are most numerous in the skin of the soles of the feet and palms of the hands, where Krause estimates their number to be nearly three thousand to the square inch. The largest glands are found near the anus and in the axillæ. The average length of a straightened tube is about one-fourth of an inch, and it is estimated that the total length of the coil-tubes of the whole adult skin is upwards of nine miles.

The function of the coil glands is the secretion of sweat, which varies in quality in health from a clear watery fluid of the smaller glands of the general surface to the more consistent fluid containing fat globules and granular matter from the glands of the axillæ, the meatus of the ear, and at the verge of the anus.

THE HAIRS.—The hairs (*H*, Fig. 1) originate about the beginning of the fourth month of intra-uterine life by cylindrical, knob-like growths downwards of the mucous layer of the epidermis. Later, these solid epithelial growths are met by extensions of the connective tissue from beneath, and the papillæ are formed in cup-shaped excavations in the epithelial bodies. In the papillæ are fine protoplasmic cells and loops of capillaries which supply nutriment to the hair-root or bulb. Continuous with the tissue of the papillæ and with fibres from the subcutaneous layer, bundles of connective tissue surround the root of the hair and run parallel with it in an oblique direction through the entire thickness of the corium. This tissue is interspersed with circular muscle-fibres, is supplied with arteries, veins and nerves, and is lined with a structureless homogeneous membrane, which does not contain either blood-vessels or nerves. The whole forms a fibro-elastic pocket known as the *hair follicle*, in which rests the hair, to the base of which is attached the erector-pili muscle.

The elements of the hair are formed in the papillæ. Gradually, by elongation, the hair is pushed outward to the surface by the sixth month of intra-uterine life. The portion internal to the *root*, and the portion external



Human Hair and Its Follicle.

Davidoff: x about 300.)

from the skin is called the *shaft*. The root of the hair is provided with two coverings, the *outer root-sheath* and the *inner root-sheath*.

The *outer root-sheath* is composed of epithelia, which are continuous with similar epithelia which form the sebaceous gland. It extends from the inner border of the pouch of the latter downwards, and ends near the bulb of the hair.

The *inner root-sheath* is made up of granular polyhedral epithelia (formerly divided into Henle's and Huxley's layers), which, in the inner part, become somewhat elongated. The protoplasm of the cells of this sheath contain *kerato-hyalin*, which promotes the cornification of the hair tissue. The inner root-sheath covers the papilla, forms the bulb of the root of the hair, and extends upwards to the neck of the follicle. According to Heitzmann, the hair is produced by this sheath alone, by a solid elongation of the epithelia. The inner root-sheath is separated from the outer root-sheath by a thin membrane. Between the inner root-sheath and the main mass of the hair, Unna says, there is found the matrix from which is formed both the cuticle of the root-sheath and the cuticle of the hair. The cells forming the cuticle of the root-sheath are arranged with their axes on a line with the circumference of the hair, while the cuticle of the hair is composed of cells which gradually become columnar in shape and lie parallel with the length of the hair. As the root nears the surface the cuticle of the hair appears to be formed of imbricated scales with elevated edges, which, in the shaft of the hair, gives it the characteristic serrated appearance. The central or *cortical portion* of the root of the hair is composed of delicate fusiform scales, firmly attached to each other, which give to the hair its great strength and elasticity. These qualities are further assured in the larger hair by a central marrow or *medulla*, which is composed of loosely packed embryonal corpuscles, fatty and pigment matter, and extends through the root of the hair to its point. The hair, after it emerges from the skin, has the same structure as the root, minus the root-sheaths.

The *color* of the hair is due to the granules and diffused pigment which is deposited in and between the scales of both the cortex and marrow of the hair. The degree of pigmentation usually corresponds with that of other parts of the skin. It varies widely in different races and individuals, and, to some extent, in the same person, under changed states of nutrition, from sudden or slowly acting influences on the trophic nerves. Blond and gray hairs contain no pigment granules. Hairs are found everywhere in the skin, except upon the soles of the feet, palms of the hands, the last phalanges of the fingers and toes and the penis. They are sometimes divided into three classes: The fine, downy, or lanugo hairs, found upon the general surface; the long and soft hair of the scalp, beard, axillæ and pubes; and the short hairs, as found upon the eyebrows and eyelids.

Each hair, normally, has a limited existence, and is shed by a process of separation, which takes place about the bulb accompanied by a contraction of the hair follicles at this point. The new hair is regenerated from the

inner root-sheath about the papilla, and, as it grows, pushes the dead hair before it until it is shed or accidentally removed by traction upon it from without.

It will be seen that the hair is not only derived from the epidermis, but that its production is a process of cornification under conditions which form a cornified cylinder, which is projected from the cutaneous surface and is very analogous to the cornification which takes place in the epidermis itself.

THE NAILS.—The nails are concavo-convex, horn-like, elastic plates firmly imbedded in the skin of the dorsum of the last phalanges of the fingers and toes; fully exposed on their upper surface and terminating in free border, which, if uncut, extends beyond the ends of the fingers and toes. The nail consists of horny epithelia like the corneous layer of the epidermis, only more dense in structure. According to Bowen the nail is a modified growth of the innermost rows of cells of the corneous layer, or, as it is frequently called, the stratum lucidum. About the third month of foetal life two or three rows of epithelia from the mucous layer appear at the site of the future nail-root. In the fourth month one or two additional rows of epithelia are projected between the first. As these cells mature they are gradually forced forward between the rete mucosum and the horny layer of that part of the epidermis which is to be the nail-bed. By the beginning of the seventh month the nail pushes its way through the corneous layer, and at the end of intra-uterine life is usually well developed.

The *nail-fold* consists of the skin in which rests the border of the nail not set free by the process of growth. Its deeper part is continuous at the root of the nail with the nail-matrix and at the sides with the nail-bed.

The *nail-matrix*, which alone produces the nail, extends from the floor of the nail-fold at the root as far forward as the anterior convex border of the *lunula*, represented on the outside by the relatively light-colored part of the nail. The derma of the matrix is composed of dense fibrous tissue, which is blended with the periosteum of the last phalanx beneath and rises above into rows of papillæ parallel with the long axes of the fingers and toes. The papillæ decrease in size as they press forward, and are the least developed at the lunula. On the papillæ and in the furrows between the rows rests the mucous layer of epithelia. These epithelia are gradually transformed into the horny epithelia of the nail. According to Unna the most posterior part of the matrix produces the horny plates of the surface of the nail, the middle of the matrix, the middle of the nail, and the anterior part of the lunula, the undermost part of the nail.

The *nail-bed*, or the tissue substance which supports the nail, as it is pushed forward from the matrix, extends from the anterior border of the latter to the beginning of the free part of the nail. It is composed of subcutaneous tissue firmly attached to the periosteum beneath, high ridges of papillæ from the corium running the full length of the nail-bed, and over the papillæ and their interspaces prickles of the mucous layer so arranged as to present a grooved appearance of the upper surface of the nail-bed. Into these grooves corresponding ridges on the under surfaces of the nail fit, thus giving firm attachment of the nail to the nail-bed.

At the junction of the nail-bed and the free border of the nail the granular and corneous layers are united again with the mucous layer, so that at this point the nail rides over a complete epidermis instead of over the cells of the mucous layer in the nail-bed. This junction can be seen through the nail, as a yellowish-white line just behind the free border of the nail if the ball of the finger is pressed against a hard substance.

The matrix and nail-bed are freely supplied with arteries and veins which, according to Hoyer, have direct communication without intervening capillaries. This provision permits a temporary stoppage of circulation in these exposed parts without liability of injury to them. The transparency of the nail over the nail-bed allows the color of the blood to show through the nail, while the opacity of the visible part of the nail over the nail matrix (the lunula), due to the changes in the superficial cells of the mucous layer undergoing cornification, entirely shuts off from sight the color of the blood in the vessels of the matrix.

BLOOD-VESSELS.—The skin is supplied with abundant and freely distributed blood-vessels in all its parts, except the epidermis. The *arterial* supply is derived from subcutaneous branches which pass through the fascia and, by division and subdivision, form, as Tomsa has shown, three separate vascular districts. The deepest supply the subcutaneous fat with numerous capillaries in a net-like arrangement inside and between the fat lobules (*A*, Fig. 1). The middle district sends off arterioles to form a capillary plexus for the coil glands (*B*, Fig. 1). The capillaries supply the tubule and end in small veins, one of which passes upward with the duct of the sweat gland and anastomoses with the veins of the papillary region. The third or upper district is supplied from an ascending artery (*F*, Fig. 1), which sends off branches to form capillaries for the hair follicles, the sebaceous glands and the papillæ. Each papilla is furnished with one or two capillary loops. The papilla of the hair has its own arteriole and capillary similar to those of the papillæ of the corium. The capillaries of the papillary layer anastomose freely with those of the upper part of the hair follicles from which loops pass to supply the sebaceous glands.

The most superficial *veins* of the skin are derived from the capillaries of the papillæ (*V*, Fig. 1) and form narrow meshes, which, together with the deeper and circular veins, form venous branches which anastomose with branches from the hair follicles and sebaceous glands. These unite into larger vessels, and with the veins from the coil glands and fat lobules merge into the venous sinuses which end in the subcutaneous veins.

Vaso-motor nerves accompany the capillaries of the skin everywhere. Under their domination the capillary circulation is largely concerned in the physiological functions of the skin as well as in pathological changes in its functions or tissues. A sudden dilatation of these vessels produces the common phenomenon of blushing; and a sudden contraction the equally marked blanching of the surface.

LYMPHATICS.—The lymphatic vessels proper are relatively few, and com-

monly are appendages to the blood-vessels, their contents flowing from the papillary portion of the corium inward to communicate directly with the subcutaneous blood-vessels. There are, however, according to Unna, juice spaces or lymphatic channels in every part of the skin which usually do not have independent walls nor absolutely free out-flow of lymph into the lymphatic vessels. These lymph channels are uniformly present in the papillæ of the corium and converge near the middle of the base where a lymphatic vessel usually begins. From the apices of the papillæ lymph flows into the mucous layer of the epidermis in all directions through the inter-epithelial spaces and between the prickle threads which unite the epithelia.

The return flow of lymph to the corium occurs slowly by way of the inter-papillary depressions of the epidermis through minute openings, or, possibly, through the ducts of the sweat glands which emerge at these points. Juice spaces similar to those of the epidermis exist in the hair follicles, in the sebaceous glands, and in the ducts of the coil glands, and form a sheath-like covering about the connective tissue bundles, the oblique muscles and the fat-cells. The course of the lymph in the corium is slowly downward to the lymphatic vessels. The passage of lymph from the spaces of the coil glands and fat tissue is by slow filtration into the neighboring veins or lymphatic vessels. This anatomical peculiarity facilitates the formation of subcutaneous fat. No lymphatic vessels proper are found either in fat tissue or in subcutaneous tissue free from fat.

NERVES.—The skin is abundantly supplied with medullary and non-medullary nerves by means of branches from the cerebral and spinal nerves, which enter the skin and form horizontal bundles in the subcutaneous tissue. From thence branches pass upwards with the blood-vessels through the corium, and divide into numerous ramifications in the papillary layer, some assuming a horizontal position to the surface, and are disposed about the sub-papillary vessels and capillaries of the papillæ. Other short nerves break up near the epidermis into non-medullated fibrillæ, which send off numerous branches, of which a smaller number end with free extremities in the connective tissue, or on the endothelia of capillaries, and a larger number penetrate into the epidermis between the basal cells. The nerves of the epidermis, after many divisions, and, possibly, reunions to form plexuses (Unna) in the inter-capillary spaces, finally send off from different points fine threads for each prickle cell, as far as the granular layer. These nerve-threads penetrate the cell protoplasm and terminate in minute bulbs on or about the nucleus. Some branches end in bulbs between the epithelia, but without any regularity of distribution. *Non-medullary* nerve fibres are also supplied to the cells of the hair-sheath and the ducts of the coil glands. According to Krause all sensitive nerve filaments ultimately terminate without medullary substance and in minute enlargements. As these nerve terminations are found in largest part, and uniformly in the cells of the epidermis up to the corneous layer, they would appear to be the transmitters of general sensation.

The muscles of the skin and the sheaths of blood-vessels are supplied

with motor-nerve fibres, while to the secreting structures and protoplasmic formations trophic nerves are distributed. Regarding the latter little, however, is positively known.

Medullary nerves of the skin terminate in the Pacinian and tactile corpuscles, and according to Robinson, some branches pass into the papillæ, then change their direction downward to the deeper part of the corium, to reascend to the papillary region to adjacent papillæ. Similar loops are given off from the nerve-bundles before they reach the papillary layer.

Pacinian corpuscles or *corpuscles of Vater* are small oval bodies mostly situated in the subcutaneous tissue, in some parts visible to the naked eye and measuring two or more millimetres in width by three or more in length. Each corpuscle consists of capsules made up of a large number of concentrically placed hyalin and connective tissue lamellæ, resembling the outer structure of an onion, and enclosing a central space or core of transparent protoplasmic material, in the centre of which is a single medullary nerve fibre. The medullary sheath of the nerve is lost in the tissue of the capsules before it reaches the central space. In the central space the nerve-fibre continues to the distal end and there divides into two or more club-shaped enlargements. Ranvier claims that after supplying one corpuscle the nerve may pass on to penetrate a second or even a third; and Robinson says the nerve may form a loop or loops, and then pass out at one or the other pole of the corpuscle. In such cases the nerve regains its sheath from the capsules at the point of exit.

The tactile corpuscles; corpuscles of Meissner or of Wagner (N, Fig. 1), are found in the papillæ of the corium, usually filling the greater part of the non-vascular papillæ. They are roundish or oval bodies of about one-tenth the size of the Pacinian corpuscle. They consist of connective tissue cells with small nuclei interwoven into vertical or spiral rolls, which go to form one to three lobules, and are surrounded by a denser connective tissue or capsule. Each corpuscle is penetrated at one extremity by one or two medullary nerves, which lose their myeline sheaths in the fibrous substance of the corpuscle. A nerve branch passes to each lobule where it divides into delicate fibrillæ, which ramify between the connective tissue cells, anastomose with each other and terminate in slight enlargements; or, according to Robinson, they may penetrate the capsule at the distal extremity and emerge therefrom as one or more efferent nerves. Delicate nerve-threads encircle the corpuscle and pass upwards with other nerves to the rete. The afferent nerve of a corpuscle may be supplied from an adjacent papilla, or one nerve may supply two or more corpuscles.

MUSCLES.—*The voluntary muscles of the skin* are chiefly limited to the face and neck. They consist of striated muscle fibres, which pass obliquely from the subcutaneous tissue into the corium. Their action under the influence of the emotions or the will aids in giving various expressions to the features. In some of the lower animals analogous muscles are large and abundantly distributed.

Involuntary muscles of the skin are found in the corium occupying horizontal and oblique positions in relation to the surface. The *horizontal* layers are found chiefly in the scrotum, penis, areola and nipple of the breast, and the eyelids. The contraction of these muscles forces the skin into folds and changes its external appearance.

The *oblique* muscles are found in nearly all parts of the corium, either as minute fasciculi, without attachment to the hair follicles, or as more distinct muscular bundles with multiple attachment to several adjacent hair follicles below, and a similar attachment to the papillary layer above, and known as the *erectores pilorum*.

The *erectores* not only have fixed points of attachment to the papillary layer of the corium and fixed points of insertion into several hair follicles at a level just above the apex of the hair papillæ; but by means of elastic fibres, which surround and mingle with them throughout their length and at their ends form tendons, they are directly attached on every side to the elastic frame-work of the corium. Their direction is oblique. The direction of the hair being at a less oblique angle, a powerful contraction of these muscles pulls the hair into a more erect position. In some of the lower animals this effect may be seen in a marked degree. The more important effects which follow the ordinary contraction of the oblique muscles of the corium are the expulsion of sebum by compression of the sebaceous glands, a lessened circulation of blood in the papillary layer, and diminished perspiration from the general tension of the upper part of the corium. The compression exerted upon the skin in this way sometimes produces an apparent roughening of the surface, or *cutis anserina* ("goose flesh"). A general effect is to prevent loss of bodily temperature. Therefore, one of the functions of the oblique muscles of the skin is the regulation of temperature. External cold stimulates their contraction, and external heat promotes their expansion.

COLOR.—The degree of color of the skin depends upon the quantity of *blood* circulating in the vessels of the corium, and to the amount of *pigment* present in the layers of the epidermis, proportioned somewhat by exposure to the heat of the sun, habits, climate, racial and other differences.

In the white race pigmentation of the greater part of the skin is usually slight and limited to a uniform coloration of the innermost epithelia of the epidermis. Deeper colored portions of the skin of the white race (as the scrotum and areola of the nipple), as also the general integument of the colored races, is produced by a wider or deeper pigment staining and deposit in the prickle cells and their nuclei. In the negro pigmentation ascends to the granular layer, and a dark coloration of the skin results. There is never any real pigmentation of the corneous layer of the epidermis, and only in abnormal conditions is it found in the corium.

PHYSIOLOGY

THE functions of the skin have been already mentioned, and the general office of the skin as a protective covering of the other tissues, etc., briefly stated. The active functions of the skin are of much importance in relation to many of its diseases. *Secretions* and *excretions* of the skin are furnished by the sudoriparous and sebaceous glands.

SWEAT.—The sudoriparous coil glands produce *perspiration* or *sweat*, which is ordinarily rapidly evaporated from the surface in the form of vapor or *insensible* perspiration. The quantity of vapor of water given off by the skin is nearly double that eliminated by the lungs. The quantity varies with the season, occupation, etc., from one to two pounds daily. If evaporation from the surface is retarded, or the excretion markedly increased, sweat accumulates on the surface in drops, *sensible* perspiration. The secretion of sweat is largely under the control of the perspiratory nerve centres, located probably in the spinal cord and medulla. These centres may be directly or reflexly stimulated, and act, through the local nerve fibres, directly on the epithelia of the coil glands. Sweat is increased by heat, changes in the blood, by certain drugs, such as camphor, pilocarpine, and toxic doses of strychnine, etc. Pilocarpine and some other alkaloids are believed to stimulate the secretion of sweat by acting directly on the peripheral nerves. The secretion of sweat is diminished by cooling the skin, by suspension of the blood supply, and by such drugs as atropine, morphine, etc. The normal increase of perspiration is attended with increased activity of the local circulation, but in abnormal conditions the perspiratory nerves may act independently of the vaso-motor system, and a free secretion of sweat occur when the skin is pale and cold. The normal perspiration is composed of about ninety-nine per cent. of water and one per cent. of organic and inorganic constituents. It is saltish to the taste, alkaline or neutral in reaction, and has a characteristic odor. The organic matter consists of urea, fat and various fatty acids. The quantity of urea in the sweat is small and varies but little in health, but in pathological states of the kidneys, with suppression of excretion of urea by those organs, it may be enormously increased. The kidneys and skin hold compensating relations normally to each other; the lessened perspiration from the skin in cool weather is compensated for by an increase of urinary fluid, and *vice versa* in warm weather. The chief inorganic solids of the sweat are the chlorides of sodium and potassium and some phosphates and carbonates. The sweat aids in removing effete material from the system, in preventing, by surface evaporation, a rise in bodily temperature, and helps to lubricate and protect the cutaneous surface.

SEBUM.—The secretion of the sebaceous glands is a semi-fluid fat, which is insensibly discharged from the sebaceous glands upon the skin, and varies

considerably in consistency and quantity within the limits of health. Its chemical constituents have been found to be water, fats, saponified fats, caseine, albumin, cholesterine and a small proportion of the salts of sodium.

The function of the sebum is mainly preservative. It protects, in a measure, the surface of the skin from external infection, from the softening effect of long-continued moisture, and, at the mucous outlets, from the contact of irritating excretions. It may prevent too rapid evaporation from the cutaneous surface and consequent undue loss of heat. It probably contributes to the nutrition of the hair, and preserves its external surface. Unlike the secretion of sweat, the nerves are not concerned in the production of sebum.

HEAT REGULATION.—A variation of bodily temperature of ten degrees from normal, either above or below, is incompatible with continued life, yet the wide atmospheric variations are endured without harm and with but slight, if any, change in systemic heat. The skin plays an important part in maintaining an even bodily temperature by regulating loss of heat. It is estimated that from seventy to eighty per cent. of the total loss of bodily heat occurs by evaporation, radiation and conduction from the skin. The skin, as a whole, is an imperfect transmitter of heat. When the surface is cooled, the amount of blood sent to the skin is greatly diminished by shrinking of the blood-vessels through the contraction of their muscular coats, influenced by the vaso-motor nerves. At the same time increased tension of the muscles of the skin reduces its superficies, and thereby diminishes the discharge of secretions. So that the loss of heat is brought to a minimum required to preserve a normal internal temperature. Excess of external heat or of heat physiologically produced within the body tends to relax the tension of the blood-vessels and the skin. A larger flow of blood towards the surface follows, the superficies of the skin are increased, and loss of heat takes place by augmented evaporation and radiation from its surface. Heat-loss is aided by dry air, and retarded by moist air.

ABSORPTION.—The naturally lubricated, firm, horny layer of the epidermis, with its continuity interrupted only by the openings of the sudoriparous ducts and sebaceous follicles, offers the chief obstruction to absorption by the skin. If the epidermis is removed and a soluble substance applied directly to the corium, absorption takes place quite rapidly. The absorption through the epidermis may be somewhat increased by removal of its oily covering with alcohol, chloroform or ether, before bringing a substance to be absorbed in contact with the surface. Rubbing facilitates absorption. In this way many medicated applications are introduced into the system and exert their effects only in a less degree than when given internally. Naphthol, iodine, etc., and soluble vegetable substances have been employed in this manner. Arsenic and lead have been taken up by the skin in sufficient quantity to cause poisoning. Gases and volatile vapors easily pass through the skin into the blood. To what extent oxygen and nitrogen are absorbed by the skin is not known. Carbonic acid is eliminated by the skin to the amount of two or three drachms daily. This exchange of gases constitutes the so-called *respiratory function*

of the skin, which Scharling, at one time, estimated to be about one-fiftieth of the respiratory work of the lungs.

It is altogether probable that all substances which are absorbed by the skin pass through the outer parts of the epidermis (sometimes aided by friction), by way of the gland ducts and hair follicles, whose walls are only lined with a single layer of epithelia, and thus present a comparatively slight barrier to absorption. Mercury in ointment is absorbed in this way in the form of vapor, or after being dissolved by the acid secretions of the skin. Watery vapor is readily absorbed by the skin from the surrounding air, and water in contact with the surface may enter the epidermis in considerable quantity, by soakage, without actual absorption. Bacteria may be absorbed by the skin. Furuncles have been produced by rubbing into the sound skin cultures of the *staphylococcus pyogenes aureus*. According to Wasmuth, bacteria do not enter the skin by the sweat or sebaceous passages, but by way of the opening between the hair-shaft and the sheath.

SENSATION.—An important function of the skin is that of *general* sensation, and the *special* sensations of *touch* and *temperature*. General sensation is provided for every part of the skin, the thinnest portions of the skin being most sensitive, and the thickest portions the least sensitive. Ordinary contact becomes painful, if applied directly to the corium. The acuteness of tactile sensation depends on the distribution of the sensitive papillæ of the corium. Where these are abundant, as in the skin of the end of the third finger, sense of touch exists in a high degree. Webber found, by experiment, that at these parts two distinct sensations of touch could be felt, only one twenty-fourth of an inch apart. The middle of the thigh and forearm appear to be the least endowed with the sense of touch, the distance at which two points of contact can be distinguished in these regions being upwards of two inches apart.

The sense of touch not only makes known the size, shape and other properties of bodies, but with it may be felt the varieties of pain and differences of temperature. Goldscheider believes there are two kinds of sensitive nerves of touch. The office of the tactile corpuscle, in the light of later investigations, appears to be to give greater mechanical protection to the nerve terminations. The quality of touch can be educated to a surprising degree. This is well illustrated in the blind, who, by their delicacy and expertness of touch, seem almost to supply a substitute for the loss of vision. The distribution of temperature sensation is very like that of common sensation, and varies in different parts of the skin; but is not modified by the relative thickness of the skin to the same extent as general sensation.

Formerly, temperature perception was thought to be a variety of general sensation. The experiments of Blix and Goldscheider not only tend to disprove this, but seem to show that there is a separate nerve mechanism for cold, heat and pressure. Experimenting independently of each other, they found that the same irritant produced on some parts of the skin a sense of cold, on others heat, and on yet others only ordinary sense of pressure. It is well known that in some diseases attended with paralysis of ordinary

sensation, sensitiveness to heat and cold may remain intact. The degree of temperature felt depends, in great measure, on the extent of surface exposed. One finger, for instance, can be comfortably borne in hot water, which would become painfully hot to the whole submerged hand. The tip of the tongue, the fingers and face are most sensitive to temperature change. From one-half to one degree variation can be appreciated by these parts.

SYMPTOMATOLOGY

THE manifestations of disease, by which its existence is recognized, are known as symptoms. One class of symptoms are felt only by the patient, as disturbances of sensation, and are known as subjective symptoms. Another class may be observed by a second person, with or without the aid of the patient, and are known as objective symptoms. The relative importance of these two classes of symptoms is probably more nearly equal in diseases of the skin than in any other department of medicine.

Symptoms may be limited to the skin alone, or they may arise also from any other part of the body. Frequently they show the pathological relationship of the skin disease with some other functional or organic disorder. Such relationship to existent cutaneous disease may be one of cause and effect. Most often the skin affection is secondary to internal disturbance of a local or general character. It must be understood, therefore, that usually the symptomatology of a skin disease is not complete unless it includes all the symptoms of disease present at the time elsewhere in the anatomy, as well as in the skin itself. Study and analysis of symptoms largely determine etiology, diagnosis and therapeutics.

SUBJECTIVE SYMPTOMS, though not constant, may be of great clinical significance. They vary widely in intensity and character, from the sense of heat of a mild erythema to the unbearable pains of destructive, malignant disease. Painful sensations may be due to a constitutional condition, as the so-called "bone pains" of syphilis; they may be direct, as in furuncles, or they may be reflex, as in many instances of pruritus. Itching is the most common of all subjective symptoms of the skin. It may be present in modified form, as a more or less pronounced tingling, stinging, crawling (formication), tickling, or as a distinct itching in any degree up to an intolerable sensation, which cannot be borne without resort to scratching, as often occurs in prurigo and eczema. Total absence of pruritus aids greatly in distinguishing syphilitic from non-syphilitic lesions, which objectively have a close resemblance. Not infrequently there is an absence of subjective symptoms in the skin in benign cutaneous diseases; in acne, for instance, they may be slight or wanting. Subjective symptoms, however, of disturbance of the digestive organs, the genito-urinary organs, or the upper respiratory tract may be often found; or, again, a cachexia with debility, sensations of weakness, languor, headache,

etc., may form a group of subjective symptoms. The sharp neuralgic pains which commonly precede an outbreak of zoster are characteristic of that affection.

The chief value of subjective symptoms, whether in or apart from the skin, depends on their nature, location and behavior under varied influences, acting from without or from within the body. The nature of *sensation*, whether a burning, smarting, stinging, gnawing, aching, shooting, etc.; the *location*, whether limited to one part, a few parts, or generalized; *behavior*, whether unaffected, relieved, or aggravated by time of day, cold, heat, water, clothing, rest, exercise, eating, drinking, sleep, mental or physical occupation, etc.; all these give *character* to subjective symptoms and establish their value, especially in the therapeutic domain. No one, who has not studied the characteristics of subjective symptoms can comprehend that, contrary to the opinion of many dermatologists, subjective symptoms are nearly, if not quite, equal in importance to objective symptoms.

OBJECTIVE SYMPTOMS comprise pathological changes, which occur in the skin and are also known as *primary* and *secondary* lesions. These distinct lesions are few in number, and may be, in a degree, successive stages in pathological evolution; yet, in differences of grouping, modes of occurrence and other features, they form the many varieties of cutaneous disease. So-called primary lesions are not always first in order of occurrence, but may be consecutive to other elementary lesions. Again, some lesions are common to several diseases. One or more lesions presenting certain features and with or without the presence of certain subjective symptoms distinguish each disease and form the basis of dermatology. A knowledge of lesions is, therefore, most essential. They are grouped as follows:

Primary Lesions.

1. Macules,
2. Papules,
3. Wheals,
4. Tubercles,
5. Tumors,
6. Vesicles,
7. Bullæ,
8. Pustules,
9. Scales.

Secondary Lesions.

10. Crusts,
11. Excoriations,
12. Fissures,
13. Ulcerations,
14. Cicatrices,
15. Unclassified.

PRIMARY LESIONS

MACULES (spots, stains, maculæ) are changes of color of the skin with little or no elevation, due to various causes, and are of various sizes, shapes and tints. In size they vary from a pin's point to patches of several square inches. In shape they may be irregular, ovoid or circular, but most often they have a roundish outline. They vary in color from a very

light red to a very dark brown, and their duration may be short or long. Their color may or may not temporarily disappear on pressure, and they may or may not be attended with subjective symptoms; usually the latter are wanting. Macules may be due to hyperæmia, to extravasations of blood, to dilatation of blood-vessels, or to changes in the pigmentation of the skin, and are designated as follows:

Erythema or *roseola* are the terms used to denote acute hyperæmia of the skin. Their color is red, if due to arterial congestion; bluish-red, if due to venous distension; and they always disappear on pressure. If a fluid exudation from the blood-vessels into the cells of the skin takes place, there is some swelling of the skin, and occasionally a slight elevation of the surface. Sometimes an escape of the coloring matter of the blood occurs with the exudation, and gives a yellowish shade to the patches. *Erythema* occurs either in irregular circumscribed patches, or is more or less generally diffused over the surface. It forms sometimes a ring or halo about an inflamed area of skin. *Roseola* occurs in round or oval-shaped spots, during the course of the eruptive fevers, rarely exceeding the finger nail in size.

Purpura signifies an extravasation of blood into the superficial tissues of the skin, which gives rise to various sized macules, of reddish-purple color at first, changing to various shades of so-called "black and blue," as absorption of the blood-coloring matter occurs. In partial venous obstruction sometimes only the coloring matter of the blood escapes and shows in yellowish-colored macules. When the spots are small and round, they are called *petechiæ*; when larger in size, *ecchymoses*; and, when linear in shape, *vibicis*. Purpuric spots may be primary in occurrence, secondary to inflammatory lesions. *Vascular nævi* is the name given to congenital dilatation of the small blood-vessels of the skin, and *telangiectases* to a similar acquired change of the blood-vessels.

Macules produced by change of normal coloring of the skin may be due to increase or loss of pigment. *Chloasma* is an example of excess of pigment, and *vitiligo* of diminution of pigment. The changes in color may be permanent or of short duration; congenital, as in moles; or acquired, as in freckles. Diffuse staining of the skin, as in jaundice, malarial melanosis, etc., are not called macules, but discoloration of the skin. Pigmentary macules are sometimes secondary to other cutaneous diseases, as the *stains* seen after acne, lichen planus, urticaria, etc. Contact of the skin with chemicals, irritants or dyes may be followed by increase of pigment. Loss of pigment may attend or follow other changes in the skin, as the light spots in scleroderma, cicatrices, etc.

PAPULES (papulæ, pimples) are small solid elevations of the skin. Papules are never large, but may vary in size from a point barely discernible to sight to a split pea. In shape they may be round or angular at the base; more or less conical, flat, or umbilicated at the summit. Papules never contain fluid, but they may be transformed into moist lesions, which dry into crusts or degenerate into ulcers, followed by scars. They may be some shade

of red, yellow, blackish, or whitish in color; of short or long duration, or permanent; and they may be inflammatory or non-inflammatory in origin. Besides the size, form, color, duration, etc., of papules, their concomitant conditions, if present, should be carefully noted, such as fever, itching, or other subjective sensations, the extent of infiltration of adjacent skin and other lesions.

The anatomical seat of papules varies. The inflammatory arise from an exudation into a few of the papillæ of the corium, with swelling of the supra-imposed cells of the mucous layer of the epidermis; or they may involve the deeper parts of the corium also. The non-inflammatory may be due to small masses of horny scales about the hair follicles, as in *keratosis pilaris*, or accumulation of sebum in the outlets of the sebaceous glands, as in comedo and milium; or to a tonic contraction of the erectorpili muscles, as is claimed by Auspitz in *prurigo*. Papules which have been torn by scratching or rubbing often present at their apex a minute blood point or crust.

WHEELS (pomphi, urticæ) are solid, circumscribed, irregular elevations of the skin, usually pinkish-white in color, and characterized by rapidity of efflorescence, short duration and frequency of recurrence.

Wheals vary in size from a pin's head to an egg. They are firm to the touch, usually flatly convex or hemispherical; but may occur in circles, bands, gyrations, or coalesce and form irregular patches. Generally, they are of a light pink color, with a whitish centre, and sometimes a pink, or again a whitish anæmic areola.

Wheals in few or large number, in crops or successively, are evolved in a few minutes, or even in the fraction of a minute, and disappear as rapidly at the end of a few hours or days. They are rarely persistent. They may become purple from hemorrhage into them, or they may be converted into bullæ; and occasionally they leave behind pigmented macules or other lesions. They are always accompanied with marked sensation of stinging, tingling or itching. Wheals originate from angio-neurotic irritation, which causes a sudden exudation of serum from the blood-vessels into the papillæ of the corium. Contraction of the vessels produces an anæmic centre, and, at the same time, prevents resorption. Relaxation of the capillaries is followed by rapid absorption. Wheals are diagnostic of *urticaria*. They may be caused, however, by local influences, such as the stings of insects, contact with the ordinary nettle, etc., and they may often be observed after hypodermic injections of watery solutions.

TUBERCLES (tuberculæ, nodules) are solid, circumscribed, cellular infiltrations of the deeper parts of the skin, more or less elevated above the surface, with well-defined borders and conical or flat tops, and vary in size from a split pea to a cherry. Tubercles have been considered to correspond to papules in color, shape, etc., or in all ways except size. They differ, however, from papules, not only in size, but in their origin in a deeper part of the skin, slower course, and less tendency to spontaneous resolution. From their deeper seat they may project upon the skin in a less degree than

the papule; they may be fixed in the skin by a broad base, or they may have a narrow attachment and largely protrude upon the surface. Tubercles sometimes become diffuse from peripheral extension and coalescence, and may involve the subcutaneous tissues as well as the skin. Ulcerating or degenerating tubercles lead to considerable destruction of tissue and consequent scarring of the skin when repair ensues. The word "tubercle," designating a form of lesion, should not be confused with the pathological condition known as "tuberculosis"; or, on the other hand, with growths usually of larger size and classed as "tumors."

TUMORS (tumores, phymata) are solid, or solid and cystic new growths, of any size from a pea upwards; benign or malignant, of variable shape, consistency and color.

Tumors may originate from any part of the skin, its appendages, vessels or nerves; one or more parts in a single lesion. They may arise from new formations situated within and beneath the derma, movable or firmly attached to the parts beneath, or to the skin, and, if to the latter, raising its surface or projecting from it in a variable degree. They may become pedunculated or even pendulous. They may or may not be attended with subjective symptoms. Tumors occur in *fibroma*, *carcinoma*, etc.

VESICLES (vesiculæ) are elevations of the horny layer of the epidermis, from a mustard seed to a coffee bean in size, containing a serous fluid exudate from the superficial or deep parts of the skin. Vesicles are usually of inflammatory origin, as in *eczema*; they may be, however, non-inflammatory, as in *sudamina*. They may be the chief feature of an eruption and seated in the skin, as in *herpes*; or they may be secondary and external to other lesions, as at the apex of a papule in *eczema*. Their fluid may be clear serum, sero-purulent from the presence of pus, or sanious and sero-sanguineous from admixture of blood. They are generally tense; roundish at the base, if discrete; and convex at the top, or pitted, as in *varicella*, or flaccid from collapse upon their contents; are often formed in groups, or coalesce into various-sized patches; are usually single chambered, but may be multilocular, as in *smallpox*.

Vesicles are of comparatively short duration; terminate by spontaneous or accidental rupture and discharge of fluid upon the adjacent surface; or they may dry into crusts. They may also be transformed into bullæ by increase of size, or into pustules, or become the seat of ulceration. An eruption of inflammatory vesicles is usually attended with subjective sensations of itching, burning or stinging.

BLEBS (bullæ, blisters) are vesicles of a pea size, or larger, and may be formed by a confluence of vesicles. Like vesicles, they are most often formed in the deep and middle layers of the epidermis; may contain serum, pus, blood or lymph; may be tense or flaccid; and may terminate in a similar manner as vesicles, by rupture, desiccation or ulceration. They differ from vesicles in their having stronger roof-walls, less tendency to spontaneous rupture, longer duration, their more frequent seat in apparently normal skin,

greater freedom from subjective sensations, and in indicating a graver systemic condition.

In shape, bullæ may be oval, hemispherical, crescentic, round or irregular from coalescence of a number of lesions. Single bulla vary in size from a pea to a goose egg; but when confluent, they may sometimes form enormous lesions. Blebs are a diagnostic symptom in *pemphigus*, *hydroa*, *herpes iris* and *pompholyx*; and may appear in the course of cutaneous *syphilis*, *erysipelas*, *urticaria*, *exudative erythema*, and exceptionally in almost any inflammation of the skin.

PUSTULES (pustulæ) are circumscribed elevations of the skin, of inflammatory origin, containing pus and pus cocci, and varying in size from a millet seed to a hazel nut.

Pustules may arise as such, but most frequently originate from vesicles or papules. Transitional forms are known as vesico-pustules or papulo-pustules. They may be roundish, globoid, convex, irregular, pointed, flat or umbilicated in shape; in color, yellowish or blood-stained, surrounded by the normal-hued skin, or by an areola; sometimes with induration, as in boils; or an indurated base, as in *ecthyma*. They may be situated around the sebaceous glands, as in *acne*; around the hair follicles, as in *sycosis*; deep in the corium, as in *furuncles*; or involve only the papillæ and epidermis. The largest proportion of pustules arise in the papillary layer; and, if the destructive process extend to several papillæ or to the deeper parts of the skin, a scar may result. Epidermic pustules heal without cicatrix.

The evolution of pustules is generally rapid; they usually rupture and form firm, yellowish, greenish or brownish crusts; or dry without rupture into somewhat lighter colored crusts. They are frequently attended with soreness or tenderness, but rarely with any degree of itching.

The pathological process in *variola* is different from other pustulous affections, in that the exudation occurs within the cells instead of within a newly formed cavity. The distended cell-walls form a multilocular pock or pustule, which cannot be opened by a single puncture.

SCALES (squama) are dry epithelial matter exfoliated from the surface of the skin in appreciable quantity, as the result of an over-production of epidermic cells, generally without exudation.

Scales are usually inflammatory in origin. They may be primary and characteristic, as in *psoriasis*; or secondary, as in *scarlatina* and *eczema*. When they are thrown off in fine, small scales, they are called branny or furfuraceous; and lamellæ, when as large as the finger nail or larger. They may be scanty and firmly attached; or they may be abundant and freely shed; they may be dry or fatty, white, pearly white, or yellowish. They may occur in single layers, or massed together in variable degree. The so-called scales of *seborrhæa* are made up of dried sebum and epithelial cells. Scales occur commonly in such diseases as *squamous eczema*, *psoriasis*, *ichthyosis*, *squamous syphilide*, *ringworm* and *favus*.

SECONDARY LESIONS

CRUSTS (*crustæ*) are the remains of effete products of disease, more or less changed by desiccation.

Crusts usually consist of serum, pus, or blood, intermingled with epithelium, and are secondary to some inflammation of subjacent parts. They may, however, consist of fat and epithelium, as in *seborrhœa*; or of fungus growths, as in *favus*. They vary in color, with the nature of the exudation from which they have been formed, from the light yellow of serous products, the greenish or greenish-yellow of pus accumulations, to the brownish or blackish hue due to the presence of blood. If the exudation is free and thin, they must soon be thrown off; if thick, they may be formed in layers and raised above the level of the skin. They may be small or large; firm or friable; thick or thin; adherent or loose; may cover a slightly changed skin, or a superficial or deep ulcer. In outline, they generally follow the lesions which produce them; but may be disposed among other lesions in a way to obscure their original boundary or consecutive relation. Crusts occur in *eczema*, *syphilis*, *seborrhœa* and many other less common affections.

EXCORIATIONS are superficial solutions of continuity usually due to mechanical injury, and varying in size, shape, and depth with the nature and degree of the force which produced them.

Excoriations occur chiefly in diseases attended with itching of the skin, and commonly result from scratching with the nails; but may be caused by rubbing one surface against another or against a foreign substance. Such lesions become of diagnostic value in some instances. When due to tearing with the finger nails, they are found only on parts accessible to the fingers. They may exist without preceding lesions, as in *pruritus*, or be secondary in occurrence. Excoriations are usually pointed in papular affections, linear in *phthiriasis*, surrounded with a superficial redness or an areola; and if due to deeper injury, exudation of blood occurs, which dries into brownish crusts. Excoriations are found in *eczema*, *pediculosis*, *urticaria*, etc.

FISSURES (*rhagades*) are linear solutions of continuity involving the epidermis and corium, due to either injury or disease. They occur chiefly where the skin is subject to frequent movement, or has become inelastic, thickened or hard. Thus they are found from disease in the normal lines of the skin, in the flexures of the joints, between the fingers and toes, at the angles of the mucous outlets of the body, and on the palms and soles. Most fissures are met with in *eczema* subsequent to the infiltration and thickening of the skin produced by that disease. They may occur in *syphilis*, *dermatitis*, *leprosy*, or from any factor which increases the tension on the skin, which has been rendered inelastic. If they involve the corium they are likely to be painful on movement, may bleed easily or give rise to some secretion. From their nature and situation they often complicate greatly the disease in which they appear.

ULCERS (ulceration, *ulcera*) are losses of substance of the superficial and deeper parts of the skin resulting from some morbid process. In size ulcers may be small or without definite limit; in shape they are often round, but may be irregular or serpiginous; the edges may be sharp, rounded, everted or undermined; in depth, superficial or deep; their bases, smooth, irregular or sloughy; covered with pus or serum, or comparatively clean. The discharge may be very offensive, or without odor. They are usually quite sensitive and bleed easily. If not interfered with, they frequently crust over with their dried product. They vary greatly in their course and duration; but unless malignant in nature, tend to heal spontaneously and invariably by cicatrization.

Ulcers may be caused by defective nutrition of parts, by infection, by suppurative inflammation, and by cellular degeneration of neoplasms. Their characteristics relate to their location, shape, size, edge, depth, floors, secretion, course, appearance of adjacent skin, and the sensations experienced therefrom.

CICATRICES (scars) are new formations, chiefly of fibrous tissue, which replace in the process of repair loss of substance extending into the corium and resulting from either accident or disease. They are covered by an epithelial layer; may contain blood-vessels and nerves; but the higher organized parts, hair follicles, glands and papillæ, are absent. Scars may be smooth, shining and pliable; *atrophic* and commonly result from superficial ulceration, or from the involution of cell infiltration or replacement, as in lupus or syphilis; they may be *hypertrophic* from excessive formation of connective tissue, as results of deep ulcers or injuries. In such cases they may be raised into ridges, elevated above the skin, attached to subjacent tissues, or with claw-like projectors in adjacent tissue, as in false keloid. Cicatrices are first red in color; they may remain so for some time, become purplish or pigmented; but with age they usually become whitish from lessened blood supply and previous loss of the pigment layer. Scars may be of considerable diagnostic importance. For this purpose their location, shape, color, size, surface and mobility should be carefully noted.

UNCLASSIFIED LESIONS include warts, horns, the cup-shaped crusts of favus, burrows, etc., which need no description, except in connection with the diseases in which they occur.

GENERAL FEATURES OF LESIONS

PATCHES signify the grouping of lesions together in separate areas. Patches may be composed of one or several kinds of lesions; thus there may be erythema, papules, vesicles, pustules, occurring singly or in various combinations, as the erythemato-papular, vesiculo-pustular, etc. The form of the patches, their arrangement and the distribution of the individual lesion are influenced in a large degree by the direction of the bundles of connective tissue fibres (which form the "lines of cleavage" of the skin) and the conse-

quent vascular distribution to the different parts. The vaso-motor centres located in the cord, which preside over certain vascular districts, furthermore influence the distribution of eruptions. When the lesions of a patch are limited in extent and show a well-defined border it is said to be *circumscribed*; when distributed over a larger and irregular area it is *diffuse*; when disposed in circular form or in sections of a circle it is *circinate*; when in the shape of rings, *annulate*; while the term "*iris*" is given to lesions having the appearance of concentric rings; and the terms *gyrate* or *figurate* to circles or rings which have coalesced and faded away at their points of contact with each other. A *serpiginous* patch is one which advances at one edge while clearing up at the other or older part; a patch with an abrupt edge is sometimes called *marginate*.

LESIONS vary in size and shape. They are called *punctate* when occurring in dots or prints; *miliary*, when the size of a millet seed; *guttate*, when the size of a drop of water; *lenticular*, when the size of a pea or bean; and *nummular*, when the size of small coins. When lesions are pointed they are said to be *acuminate*; when depressed in the centre, *umbilicated*; when flat, *plane*. Individual lesions are *discrete* when situated apart; *confluent*, when close together or coalescing.

ERUPTION is a term used to designate all the lesions and patches collectively, wherever situated upon the skin. When an eruption covers the entire cutaneous surface it is said to be *universal*; when distributed over the whole body, with areas of sound skin between, *general*; when irregularly scattered over the surface, *disseminate*; when limited to one or a few regions, *localized*; when occurring alike on both lateral halves of the body, *symmetrical*; when limited to one side of the body, *unilateral*. An eruption is called *uniform* when it consists of only one type of lesions; *multiform*, when more than one type of primary lesions are present at the same time.

Many other qualifying terms are employed to describe certain peculiarities of cutaneous eruptions, as to regional distribution, cause, clinical appearance, etc. Their meaning is usually clear, and therefore no extended explanation is necessary. The term *capitis*, occurring upon the head, usually the scalp; *parasitical*, produced by an animal or vegetable parasite; *ruber*, dark red in color, are examples of qualifying words used in describing eruptions.

ETIOLOGY

THE causes of skin disease arise from many and varied sources, and operate from within the system (internal) or from without (external). The same causative factors do not always produce, directly or indirectly, the same or even like effects upon the skin; while, again, the same disease in different instances may be occasioned by various factors. Specific diseases, however, usually correspond to specific causes. This varied relationship of many causes to disease, together with a want of knowledge regarding the etiology of

many diseases, stands in the way of the most practical system of grouping skin lesions or diseases according to their etiology. Causes themselves may be divided for convenience into *predisposing* and *direct*.

PREDISPOSING causes include states of the general system, which have come from hereditary transmission; acquired conditions of the fluids and tissues of the organism, often manifested by the presence of internal disease of a general or local nature. Cutaneous eruptions occurring under such conditions of the system may be incidental or essential symptoms of them, and hence are sometimes called *symptomatic* skin diseases.

DIRECT causes are those agencies which act directly upon the skin itself, or appear to do so. Diseases produced by direct causes, together with diseases which begin in or are confined to the skin, but whose causes escape our observation, are termed *idiopathic skin diseases*.

It is possible that the same disease at one time may be symptomatic, and at another idiopathic.

General etiology of cutaneous disease is, therefore, a principle with a large varying relationship, and frequently identical or mingling with the general or special causes of other diseases of the system, its organs or parts, which, moreover, must be practically learned in connection with individual disease. A brief review of the more general predisposing and direct causes will suffice here.

Among the **predisposing** and general causal agents may be found:

Age and sex. Life is measured by age, and certain events occurring at periods of life are qualified by sex. In the early part of life the more acute inflammations and hypertrophy are more apt to occur; in late life, less acute inflammation, atrophy and degenerations. Beginning with early infancy, strophulus, congenital syphilides, ichthyosis, etc., may appear. Intertrigo, impetigo contagiosa and ringworm of the scalp are common to childhood; during dentition, erythema, eczema capitis and urticaria are most frequent. Acne, seborrhœa and psoriasis seldom develop before puberty. Chromophytosis, rosacea, lupus erythematosus, etc., are diseases of adult life. Cancer and affections due to degenerative changes are rarely seen until middle life or in old age.

Vaccination must now be reckoned as an event in the life of most children. While its causal relationship to subsequent disease is not clear, there can be little doubt that such relation exists as regards some cases of skin disease. It is probable that its influence in such instances is largely to arouse some latent tendency in the system, rather than a direct effect. The author has observed cases of psoriasis, eczema, furuncle and impetigo which appeared to have originated primarily from vaccination. Louis Frank has classified twenty-two skin diseases which have been attributed (1) to vaccine virus; (2) to mixed inoculation, and (3) as sequelæ of vaccination.

Sex alone exerts little influence until the approach of puberty. Thereafter, the greater divergence in the habits of the two sexes has a modifying effect only less pronounced than the physiological differences of the mature

male and female. These latter differences reach the point of exclusion in only two diseases—sycosis does not occur in the female, and Paget's disease of the nipple does not often occur in the male. As causal events peculiar to women, menstruation, pregnancy, lactation and the menopause require notice.

Menstruation more often aggravates existing eruptions by the recurring disturbances of the circulatory or nervous systems; but, if excessive, it may lower nutrition and create a predisposition to cutaneous disorders. Such diseases as eczema, urticaria, acne and rosacea are frequently worse shortly before the appearance of the menses, while transient erythema, herpes and purpura may appear only at the monthly period. Bloody sweat (hæmatidrosis) has been observed in amenorrhea; likewise, excessive local or general perspiration, with or without resulting erythema or eczema, is not uncommon.

Pregnancy may be attended with a distressing pruritis vulvæ, or the itching may be generalized and sometimes associated with urticarial lesions. Chloasma is quite common, herpes simplex is often seen, herpes gestationis is quite rare, and impetigo herpetiformis, a fatal disease, is, fortunately, extremely rare. With the end of pregnancy, most of the eruptions incident thereto soon disappear.

Lactation, like menorrhagia, may tend more to aggravate chronic eruption than to excite fresh outbreaks. This is probably due to a lack of cutaneous vitality from a lowered or perverted nutrition. Thus, psoriasis and eczema, which may have subsided during pregnancy, are liable to return during lactation.

The *menopause* usually occurs at an age in women when even moderate derangements of circulation or innervation are apt to be shown in increased activity of standing eruptions or in the advent of new. Rosacea, eczema and seborrhœa of the scalp are among the diseases which may originate or become more pronounced in this epoch of woman's life.

Heredity. Many persons appear to inherit a non-resisting and sensitive skin, and are, therefore, prone to varied forms of cutaneous disease. Those of direct inheritance include scrofula, syphilis, probably ichthyosis, and, occasionally, psoriasis, alopecia-prematura, leprosy, xanthoma and possibly eczema. It is not unlikely that some eruptions, long thought to be hereditary, may be found wholly due to infection, and others to the transmission of some diathesis not uniformly productive of skin disease. Hereditary tendency may show a marked preference for one sex of a family through succeeding generations.

Diathesis may be inherited or acquired; active or latent. It has been defined as any condition of prolonged peculiarity giving proclivity to definite forms of disease. The causal relation of diathesis may always be suspected in chronic disease. In the cutaneous sphere the more common diatheses, such as the rheumatic or gouty, may lead to eczema, psoriasis and exudative erythema; the strumous diathesis to the development of the scrofulides, eczema, acne and impetigo.

Climate and seasons. Some skin diseases are mainly confined to tropical

climates, *e.g.*, leprosy, delhi boil, yaws, etc. Warmth of atmosphere seems to favor outbreaks of urticaria papulosa, miliaria rubra and intertrigo; in cold weather, eczema, psoriasis, seborrhœa, lupus, ichthyosis and pruritus are aggravated, or tend to recur; chilblains and dermatitis hiemalis originate in cold weather, boils and erythema are most frequent in the changes of spring and autumn. Sudden changes in temperature may cause greater activity in many existing eruptions or a fresh efflorescence.

Occupation. Fissured eczema is common in plasterers, masons and wash-women, whose hands are frequently brought in contact with alkalies. Those who handle animals or animal substances, as herdsmen, tanners and butchers, are most liable to anthrax and ecthyma. Occupations necessitating exposure to heat, as with cooks, blacksmiths and firemen, are favorable to attacks of erythema, eczema and dermatitis; while workers at oil refining, tar distillation and in aniline color making, etc., are peculiarly subject to the latter disease.

The *dwelling* and *clothing*, often in connection with *uncleanliness* in various forms, are promoters of skin diseases. The air of houses and rooms polluted with sewer gas and other noxious emanations are favorable conditions for the occurrence of pemphigus in young infants, furuncles and strumous diseases; and, associated with uncleanliness of the person, largely diminish the resistance of the skin to the invasion and multiplication of animal and vegetable parasites. Soiled flannel and other underclothing, long worn, favors the development of seborrhœa of the body and eczema; while too light or too coarse garments, or the presence of irritating dyes in clothing, may excite excoriations, papular eruptions and pruritus. It is to be borne in mind, however, that eczematous eruptions are usually made worse by indiscriminate use of water, and that too much or too frequent scrubbing of the skin with poorly made soaps may excite some form of that polymorphous disease.

Effects of existing disease: *Gastro-intestinal disorders*, dyspeptic or catarrhal, nearly always accompany the early onset of rosacea, and only less often bears the same relation to urticaria. Erythematous, acnoid and eczematous affections also, at times, appear to originate from alimentary disturbances. The relation of food in quality and quantity to disorders of the digestive tract and associated skin eruptions is not to be overlooked. Infant foods, containing undigested starch, are frequent sources of cutaneous eruptions in infants and young children; but, at all ages, food may be an important factor. Certain individual idiosyncrasies in respect to one or more articles of diet may also have a direct causal relation. *Diabetes mellitus* predisposes strongly to the formation of boils, carbuncles, cachectic acne, urticaria and erythema. Glycosuria rarely produces a characteristic papulo-pustular eruption (*xanthoma diabeticorum*), unaccompanied with any subjective symptoms, but which rapidly disappears with the relief of the diabetes. Pruritus, with or without secondary eczema, especially about the genital region, is frequently caused by diabetes. Of less practical importance is the superficial and terminal gangrene of the skin, which occurs sometimes in the advanced stages of the disease. Eczema, purpura, urticaria and general pruritus are

occasionally observed in the course of *chronic nephritis* in old people. In the advanced stages there sometimes appears upon the skin an erythema, which, at first, may resemble measles or scarlet fever, but the patches of eruption soon coalesce and may become generally diffused. Desquamation in large flakes follows, leaving the skin infiltrated, red and sometimes eczematous. This uræmic erythema is of grave prognostic significance.

Spasmodic asthma is frequently enough observed in association with eczema, acne, urticaria and ichthyosis to be named as a cause. The author had a case of pityriasis rubra pilaris under observation, in which the periods of aggravation were attended with severe asthma. *Lithæmia* and *jaundice* are common causes of persistent pruritis, with or without an attendant eruption due to scratching. *Chronic jaundice*, from whatever origin, frequently stands in etiological relation to existing multiple xanthoma; while simple xanthoma of the eyelids, on the other hand, in the majority of cases, stands in sequent relation to migraine. Incidentally, this shows how the same pathological disease, though clinically unlike, may arise from totally different causes. *Chronic constipation* may induce pigmentary deposits in the skin or chloasma. A rare affection named chromidrosis, in which the sweat and sometimes the sebaceous secretion are colored, is sometimes a result of constipation. A theoretical explanation of the indigo colored sweat is, that indol is absorbed from the long-retained fæces, and changed in its elimination into indican and indigo. However this may be, cure of the constipation is the first step in the treatment of these disorders of secretion. Chloasma patches on the skin occur not infrequently in pregnancy (as above stated), from uterine derangements, and occasionally they are symptoms of abdominal cancer or a contracted liver. The general staining of the skin, from Addison's disease and Graves' disease or exophthalmic goitre, is well known. In the latter disease, however, the discoloration may be circumscribed and limited as freckles about the eyes, or it may resemble leucoderma. In old age pigment patches are sometimes due to degeneration of the skin.

Constitutional diseases, attended usually with characteristic cutaneous change beside those mentioned, are the eruptive fevers, syphilis, scrofula, pyæmia, scurvy and malaria. Chronic or severe forms of malarial disease not infrequently produce melanotic staining of the skin, herpes and urticaria; less often, erythema and purpura; and still less commonly, furuncles and carbuncles.

Neurotic disturbances frequently determine the location and extent of eruption, but the cutaneous expression is by no means constant, and the character of the eruption is far from uniform, if we except the varieties of zoster which are believed to be always due to an inflammation of some part of the nerve trunk or ganglion, having terminations in the affected area. Nervous shocks, such as great fright, grief, etc., do sometimes transmit to the trophic nerve powerful impressions enough to cause bleaching of the hair, baldness, eczema, severe pityriasis and psoriasis; but all of these may follow quite different causes.

Marked variation in the degree of nutrition resulting in plethora or debility, while not strictly diseases, if persistent, establish a predisposition to disease. *Plethora* predisposes to superficial congestions and inflammations of the skin, and tends to make them less tractable to treatment. Such over-fed individuals are more liable to attacks of eczema, pruritis, etc., from trivial causes. The debilitated are much more prone to attacks of seborrhœa, furuncles, carbuncles, ecthyma and impetigo than those who are well nourished. Defective nutrition and impaired functions of the skin probably also have much to do with the ease of lodgment and growth of parasites, the invasion of pathogenic germs or the absorption of contagion. Some persons are readily infected by contact, while others remain wholly immune after exposure. This difference can only be accounted for by constitutional or local loss of vigor, some anatomical peculiarity or change in quantity or quality in the protective secretions of the skin.

Drugs in small or large doses produce nearly all the elementary eruptions of the skin. With few exceptions, drug eruptions are not a constant effect or uniformly characteristic. The eruptions which are caused by quinine, copaiba, belladonna, iodine, bromine, chloral, etc., will be referred to in detail under *dermatitis medicamentosa*.

Thus far it will be seen that the general or predisposing causes of skin eruptions are both numerous and plainly related. Yet, in many instances, we are unable to demonstrate the direct connection between them and the cutaneous disturbances caused by them. This may be, in a measure, due to the operation of several or many factors at the same time to produce morbid conditions of the constitution or of separate organs or parts not understood or easily defined. The *psora* of Hahnemann finds little place in the modern etiology of dermatoses, and, in its narrow sense, deserves none. But, with a broad interpretation of its intended meaning, it might well stand for those indefinable states of constitution which underlie many chronic skin diseases, and, at the same time, prevent a too ready neglect of the relations of general pathology in the active search for the local or direct causes of eruptive diseases.

The direct causes of skin diseases are external in origin and do not necessarily bring about any disturbance in other organs; or, if they do so, such disturbances are secondary to the skin disorder. Some of these have been already named under the more general head of occupation, etc. Idiopathic skin lesions, unlike the symptomatic, have a distinct relation to the nature and action of the causes which produced them. These causal factors, according to their nature, may be chemical and toxic, mechanical or parasitic. *Chemical* agents may excite irritation, inflammation, or destroy the superficial and deep layers of the skin when brought in contact with it. The degree of injury will depend on the nature of the irritant, the duration of the application, and the sensitiveness of the part involved. Agents of this class are very numerous; they include many plants which contain an active principle deleterious to the skin, such as arnica, ivy, sumac, mustard seeds, etc.; most of the

ethereal oils and resins; the poisons introduced into the skin by the stings and bites of insects and reptiles, such as bees, mosquitoes and snakes; the various antiseptic preparations, when carelessly or over-used, such as iodoform, corrosive sublimate, carbolic acid, and creolin; substances used in the process of manufacturing dyes, as aniline dyes; strong acids, as nitric, muriatic, sulphuric, acetic and lactic; the stronger alkalies, as caustic potash; the effects of heat, from unusual exposure to the rays of the sun, from over-exposure to X-rays, or from the radiation from heaters or flames, or from actual contact, and also the extremes of cold. To these might be added the effects from chemicals used in the various trades, frequently unavoidable, and especially the many medicated applications, often unnecessary. It is to be borne in mind that chemical irritants may not be limited in effect to the area of the skin directly acted upon; but, through their influence on innervation, may cause disturbances at distant points, or, from weakening the resistance of the skin, permit other agents to become operative. Regarding this relation of medicinal irritants, Kaposi has well said, "These relations are altogether too little known, for, if they were, physicians would not use cutaneous irritants so indiscriminately."

Mechanically acting agents are incidental to nearly every active employment of mankind, and may act to produce changes in the epidermis or deeper layers of the skin. Active exercise, which commonly promotes health, if too long continued, without protections of the surface, may cause chafing and consequent inflammation. Frequent or prolonged contact with water, as the hands of a laundress, is apt to cause eczema. Occupations which constantly expose the hands to irritating particles, as with bakers, grocers, plasterers and masons, also tend to excite eczematous eruptions. Intermittent pressure, as in the work of shoemakers, blacksmiths, etc., produces thickening of the corneous layer of the epidermis, known as callus; while prolonged pressure over a point, as from a tight shoe, may produce clavi. Tightly encircling bands and garters may obstruct the local circulation, may induce swelling of the skin or enlargement of the veins. Besides the many other causes of mechanical irritation not named, and incident to occupation and habits, are the excoriations from scratching with the finger nails, and all sorts of accidental abrasions, bruises and lacerations of the skin, to which every one is more or less liable.

Parasites may be either animal or vegetable in origin. Modern methods of investigation have demonstrated the etiological relation of parasites to a large number of skin diseases. In the majority of these diseases the parasite is of vegetable origin. *Vegetable parasites*, known as micro-cocci, bacilli, etc., are believed to cause a considerable number of cutaneous diseases. Their position as causal factors is well established in favus, the forms of ringworm and tinea versicolor. They are found in the lesions of sycosis, carbuncle, furuncle, erysipelas, leprosy, tuberculosis cutis (lupus vulgaris, etc.), and other less common diseases. They probably enter into the causation of syphilis, molluscum epitheliale, possibly carcinoma, some cases of eczema and some

affections whose etiology is now obscure. It is but proper to say that scientific proof of the etiology of micro-organisms to skin lesions, according to the laws of Koch, is wanting except in a few diseases. On the other hand, observed facts in clinical history, curative and preventive therapeutics, justify the belief in such an etiology of wider influence, and emphasize its importance to dermatology. *Animal parasites*, comparatively few in number, are well established as essential causes of cutaneous lesions. Some dwell upon or in the skin in a permanent way, as the itch mite, filaria, etc.; others, as the bedbug, body louse, etc., only seek the skin at intervals to obtain food therefrom. The lesions produced by animal parasites may be ephemeral wheals or erythema; sometimes vesicular and pustular inflammations of longer duration, or permanent and disfiguring, as in parasitic elephantiasis. The healthy and intact skin does not probably afford the proper soil for the habitat of most vegetable or animal parasites; hence, some predisposition may be the first element in the etiology of these diseases.

DIAGNOSIS

IN the discrimination of skin disease it is not enough to say it is papular, pustular, etc., but in each individual case it should be recognized broadly as a clinical entity, beginning with its earliest manifestations and ending with the evolution of its lesions. Knowledge, therefore, of general and special pathology, symptomatology and etiology, united with trained observation of minute details and sound judgment, are essential to accurate diagnosis. While special diagnosis will be considered in connection with separate diseases, there are general methods which are profitable to study by themselves, as illustrating a system of collecting and grouping facts for the purpose of diagnosis. If it appears that an expert diagnostician arrives at a differentiation of disease by a rapid survey of symptoms, etc., it is a mistake to infer that his expertness was attained in any other way than by systematic methods of inquiry. An effort should always be made to see things as they are found, and not hunt for facts to fit a name, which is the last if not the least in importance. As sight and touch form the chief means of examination the patient should be seen in good daylight. Direct sunlight or artificial light modify color, especially the shades of yellow, to such an extent as to be at times misleading. The room should, if possible, have walls of neutral tint so as not to reflect their color upon the skin. The temperature of the room should be such as to permit the exposure of the skin, in whole or part, as may be necessary, without injury to the patient. The inquiry may now be conducted regarding facts which pertain to the *patient*, the *disease* and the *lesions*.

The following grouping after Crocker, somewhat modified, will be found a useful guide for the student in this line of investigation:

<i>Patient</i> .—Age, sex, family history, occupation, mode of living, general health.	} Causation.	{	Diagnosis. (Name.) Treatment. Prognosis.
<i>Disease</i> .—Symptoms, duration, course.			
<i>Lesions</i> .—Kind and character, evolution, distribution, effects.			

The **patient's** family and personal history, age, sex, occupation, mode of living, complexion, general aspect, systemic or local disturbances are to be noted. These have been mainly discussed in the chapter on etiology, to which the student is referred. Family history may show some hereditary influence; personal history, the previous existence of other disease, or previous attacks of the same disease, as is not uncommon in psoriasis, eczema and urticaria. Mode of living may have developed some diathesis, led to plethora or anæmia. Local disturbance in the gastro-intestinal tract is apt to precede attacks of urticaria and erythema.

The **disease** manifests itself by *symptoms* of a general or local nature, which may precede or attend the eruption. There is constitutional disturbance during syphilis, leprosy, etc.; well-pronounced fever in most of the inflammatory contagious skin diseases; itching usually in eczema and the parasitic skin diseases; burning or neuralgic pains in zoster. Some of these sensations are quite diagnostic when they fit into the clinical history. The same may be said of the odor attending some eruptions, as the mouse-nest odor in favus, the offensive odor in syphilitic ulcerations, in variola and gangrene. The *duration* may aid diagnosis by exclusion. An eruption lasting continuously two or more weeks would exclude the eruptive fevers, most cases of erythema and urticaria. Eczema may last for weeks or longer, with remissions; and occasionally it becomes very chronic, lasting for months or years, like the more usual chronic acne, rosacea, psoriasis, lepra, lupus, etc. The *course* of the disease is frequently characteristic. Did the eruption appear all at once, as in herpes; in crops, as in varicella and pemphigus; or continuously, as in acne, some lesions coming, others resolving? Did it extend by more or less progressive spreading, as often seen in parasitic affections, in eczema, etc.? Is the present eruption primary, or changed by the stages of evolutions, as in erythema multiforme; or modified by scratching or local methods of treatment? As the foregoing queries are answered to some extent by the patient, due allowance must be made in most cases for inaccuracies of description and misuse of terms. Patience and tact are often required to elicit the facts, especially in private practice, when the most erratic history may be given.

The **lesions**, their peculiarities as to kind, distribution, evolution, etc., afford the real basis for diagnosis, which the information regarding the patient and the disease tends to sustain or modify. The kind of lesion, whether papules, as in lichen and prurigo, etc.; or papulo-pustules, as in acne, eczema; or wheals, as in urticaria; or multiple lesions, as in syphilis and many cases of eczema. The presence or absence of induration in or about them; signs of inflammation, as heat, swelling and color, or color due to other pathological

changes, as the yellow crusts of favus, the violet red hue of lupus nodules, etc. In the earlier stages of an eruption, lesions are most likely to show typical forms, unchanged by evolution or artificial means. Even when such changes have occurred, the edges of an active patch will frequently exhibit the original form of lesion. Secondary lesions may indicate the primary form, as the yellow scabs from previous pustulation, the light yellow to brown or blackish crusts from the drying of serous, seropurulent and bloody discharges; the ulcers due to degeneration of infiltrating growths, as from syphilis and lupus vulgaris. Thus, also, is their pathological character and evolution partly ascertained.

The identity of a lesion may be made clear by observing its peculiarity of *evolution*. Lesions may spread by peripheral extension, and, at the same time, clear in the centre, as seen in ringworm of the body, erythema iris, etc., or without tendency to clear centrally, as in seborrhœal eczema. When adjacent rings expand to meet each other, the sections in contact disappear, while the free border continues to extend, forming irregular curves and figures, as in some cases of psoriasis.

The *distribution* and *extent* of lesions may be characteristic. *Symmetrical arrangement* of lesions is usually due to constitutional influences, or to the presence in the circulation of irritants or poisons; examples of which are the lesions of the eruptive fevers, and from the ingestion of the iodine salts.

Unsymmetrical distribution of lesions is largely due to agents primarily acting upon a local part, as the local infection in lupus vulgaris, or through the nerves of a part, as in zoster. Universal distribution of lesions may occur in pityriasis rubra, pemphigus foliaceus; and a general distribution in many erythematous affections, eczema and psoriasis. The lesions in some skin diseases commonly *begin* in certain regions; as, for instance, seborrhœic dermatitis upon the scalp, psoriasis upon the extensor aspect of the elbows and knees, and thence by preference to the other extensor surfaces. The general tendency of eruptive diseases to develop in certain regions is shown in the table below, from Pye Smith, as modified by W. A. Hardaway.

Scalp.—Eczema, seborrhœa, alopecia, alopecia areata, psoriasis, steatoma, favus, syphilis, ringworm (in children), pediculosis.

Face.—Forehead: Chloasma, acne, syphilis, psoriasis, zoster, epithelioma. Eyebrows: Seborrhœa, alopecia areata, alopecia syphilitica. Eyelids: Xanthoma, eczema tarsi, milium. Nose: Lupus, syphilis, epithelioma, rosacea, rhinoscleroma, seborrhœa. Nose and cheeks: Rosacea, lupus erythematosus. Nostril orifice: Folliculitis, impetigo, herpes. Upper lip: Eczema, herpes, lupus. Lower lip: Syphilis, epithelioma. Mucous membrane of mouth: Herpes, syphilis, measles, small-pox, lupus, leucoplakia, lichen planus, pemphigus. Bearded face: Sycosis, pustular eczema.

Ears.—Lupus erythematosus, syphilis, lepra, xanthoma tuberosum, eczema.

Neck.—Eczema, scarlatina, intertrigo, furuncle, carbuncle, sycosis.

Back.—Acne, tinea versicolor, seborrhœa, pediculosis, carbuncle.

Chest.—Scarlatina, varicella, syphilis, keloid, seborrhœa, lenticular cancer.

Breasts: Keloid, eczema. *Nipple*: Eczema, scabies, Paget's disease.

Sides of trunk.—Zoster, syphilis.

Abdomen.—Typhoid and typhus rashes, tinea versicolor, scabies, syphilis.

Umbilicus: Scabies, erysipelas, carcinoma.

Scrotum.—Eczema, pruritus, syphilis, elephantiasis.

Prepuce.—Herpes, scabies, syphilis, chancroid, eczema.

Nates.—Furuncle, carbuncle, scabies, syphilis.

Anus.—Pruritus, eczema, mucous tubercles.

Elbows.—Flexor side: Eczema, xanthoma planum. Extensor side: Psoriasis, ichthyosis, xanthoma tuberosum.

Forearms and backs of hands.—Erythema multiforme.

Wrists.—Flexor side: Scabies, lichen planus. Extensor side: Small-pox.

Hands and feet.—Eczema, scabies, callositas.

Palms and soles.—Syphilis, eczema. Fingers and toes: Chilblains, pompholyx. Nails: Hypertrophy, atrophy, onychomycosis, onychia, paronychia.

Axilla and groins.—Intertrigo, eczema, ringworm, erythrasma.

Thighs.—Extensor side: Prurigo, keratosis pilaris.

Knees.—Extensor side: Psoriasis, ichthyosis. Flexor side: Eczema.

Legs.—Eczema, erythema nodosum, ulcer, purpura, ecthyma.

Sometimes the line of inquiry can be carried further and the *effects* of lesions noted, such as the pigment stains which may be left by the lesions of syphilis, lichen, acne, etc., the disfiguring scars of scrofuloderma and lupus vulgaris, the smooth, delicate cicatrices of superficial syphilitic ulcerations. Care must be used to discriminate between lesions natural to the morbid process and those which result from external influences, such as the blood crusts, excoriations, wheals, etc., from scratching, or from changes brought about by soothing, stimulating, destructive or surgical treatment. Again, it is to be borne in mind that two or more diseases may co-exist, in which one may more or less completely mask others; thus eczema may be engrafted on a lupus erythematosus, syphilitic ulceration disguised as lupus vulgaris; scabies complicate a psoriasis, or impetigo change the clinical aspect of a varicella. Certain lesions are pathognomonic whenever found in association with other signs of a disease. Such are the sulphur-yellow cup of favus; the broken "stubble" like hair in tinea capitis; the burrows of the itch mite; the ova on the hairy parts, and the hemorrhagic points on the non-hairy parts, in pediculosis; the flat, glistening papules in lichen planus; and the apple-jelly nodules of lupus vulgaris.

The *causes* of a cutaneous disease will frequently be learned during the collection of facts relating to the patient, the symptoms and the nature of the lesions found, aided by a knowledge of general and special etiology. The presence and nature of other existing diseases may be demonstrated by methods of examination adapted to such disease, as clinical analysis of the urine in affections of the urinary organs, or laryngoscopic examination in cases of syphilis, cancer, lupus and leprosy. The microscope aids in the detection of parasites, and may further aid diagnosis in demonstrating the nature of neoplasms, etc., in doubtful cases. Bacteriological science has enabled great

advances to be made in etiology and pathology. In no other branch of medicine has such strides been made in recent years; and this method of investigation may at times be available in establishing both the cause and the diagnosis of obscure cases. A *diagnosis* should never be made without sufficient examination. Occasionally even the most expert dermatologist may require repeated examinations before arriving at a positive conclusion. The same facts which enable the physician to distinguish one disease from others furnish important indications for *treatment* (discussed below), and these again together with a knowledge of the probable effect of treatment form a basis for *prognosis*, *i.e.*, the probable course or termination of disease.

TREATMENT

No principles or art of therapeutics of the skin can be scientific or practical which disregard the varied relations and the equally varied functions of the cutaneous structure. That therapeutic principles founded on such a basis alone can be wholly scientific is not claimed, because knowledge of function and the mode of operations of external and internal forces or influences upon a part are far from complete, yet certain relations and needs are unmistakable and point to the advantage of classifying principles in accordance therewith. The value of a principle of therapeutics must depend on the stability of truth or facts which underlie it and its utility in the art, with or without strict regard to the details of its application. Therapeutic principles prevent hap-hazard prescribing, they conserve time, but they need not limit freedom of thought or abrogate common sense.

To meet his own needs in treating diseases of the skin the author has classified treatment under five heads, each of which indicates a special purpose, but which may merge into another in application without loss of identity or conflict in action. Individually they stand for nothing new; collectively they may represent a convenient system of inquiry as to what is required in the treatment of a case, whether:

- Causal (antiparasitic, etc.),
- Physiological,
- Pathogenetic,
- Mechanical,
- Operative, one or more.

Etiology becomes at times a basis for a principle or treatment which may or may not fall within the sphere of other principles, therefore it is best considered by itself.

Causal treatment implies the use of means to remove the obvious causes of disease. Perhaps its most common application is in the destruction of parasites. While the latter do not represent the whole etiological factors in such cases, neither prevention nor cure permits a disregard of their rela-

tions as exciters or disseminators of certain diseases. Among the parasitocides *ichthyol*, *thiol*, *resorcin*, *carbolic acid*, *naphthol*, *lysol*, *creolin*, *trikresol*, *formalin* (saturated aqueous solution of forty per cent. formic aldehyde), *potassium permanganate*, *iodine*, *hydrogen peroxide*, *corrosive sublimate* and *sulphur*, may be mentioned.

Causal treatment may call for operative measures, as in a case under my observation, where an intractable eczema of the face was easily cured after the removal of a nasal polypus. Chloasma, partly due to resorption of coloring matter from the intestines, may often be cured after sufficient removal of the effete intestinal accumulations, whether attended with constipation or not. A daily stool is not always a sign of efficient intestinal elimination. Faecal tumors may even exist in the presence of a diarrhoea. Take, again, a case of rosacea in a person who habitually over-indulges in stimulating food, especially beef and hot liquids, of what benefit can an attenuated remedy be to such a patient without first correcting the causal excesses of diet? Causal treatment may employ any of the foregoing principles, be active in nature, or it may be negative and be typified in "don'ts."

Physiological methods consist in the use of things which properly used or regulated ordinarily contribute to health. We can even benefit congenital ichthyosis by change of climate; sometimes relieve epidermic exfoliating diseases by the proper use of water externally and internally. Physiological treatment often bears relation to existing non-cutaneous affections, such as, for instance, nephritis or diabetes. One of the most aggravated cases of acne indurata ever under observation was helped little by treatment with indicated drugs until in searching for a cause the urine was examined and sugar found, though none of the common symptoms of glycosuria had appeared. A physiological regulation of diet soon told favorably upon the distressing skin disease. Excessive use of coffee is not infrequently the chief excitant of pruritus. Instances might be multiplied in other directions illustrating the value of healthful regulation of occupation, habits, exercise, etc. Some people want all the passive enjoyments of life and few of the active. If such persons acquire a chronic cutaneous disease they nearly always need a physiological reformation. Many of the natural spring waters of this country and the Continent are of great value, but the change of air, scenery and food, together with the relief from business and enforced rest, is responsible in a large degree for the marvelous results achieved by a sojourn at one of the health resorts. However, the pathogenetic effects of the various mineral waters, administered wisely, may be appreciable.

Pathogenetic therapeutics is a wide field and beyond the scope of this contribution. Many believe with the author in the vast superiority of homœopathic medication, and are very likely thankful that it is not a question of doubt, but occasionally find it difficult to correctly apply, because we do not know enough about it. These difficulties are not always so great in cutaneous therapeutics, as objective *lesions* are added to subjective indications. The principles, however, are the same and the pegs on which to hang a prescrip-

tion, *i.e.*, *location*, *sensation*, *aggravation* and *amelioration*, are just as valuable here as elsewhere and there are no bodily limits as to location of symptoms. Pathogenetic therapeutics may be external, however, as well as internal. In this respect the exposed mucous surfaces and the skin cannot be viewed therapeutically like other tissues, subject as they are to direct external influences. The indications from pathological change can sometimes best be met by local remedies which produce immediate pathological effects. This is the chief basis, I believe, for local pathogenetic treatment. Repressive measures are inadvisable and often dangerous, but substitutive irritation is often curative. Take a case of long standing eczema, for example, with pronounced changes in the structure of the skin. Such a case we may cure by internal treatment, but if not soon responsive to a remedy the immediate application of some substance that will produce a similar irritation or inflammation may be of great service. It would seem that to produce a reaction is often the most scientific way to cure a chronic skin disease. This may be achieved by the external application of such drugs as *tar* (crude or distilled), *ichthyol*, *carbolic acid*, *pyrogallol*, *chrysarobin*, *anthrarobin*, *iodine*, *formalin*, etc.; or by the use of physical agents, such as *heat*, *light*, *Röntgen rays*, *radium*, *high frequency currents*, etc.; or by internal medication in physiological doses of such remedies as *mercury*, or the *iodides*; or by the administration of *serums* or *toxins*, like streptococcus serum, tuberculin, thyroïdin to produce reaction.

Mechanical treatment is nearly always auxiliary to other methods. The nature, functions and exposures of the skin may call for protection, lubrication, support, compression, etc., by the employment of non-medicated lotions, oils, ointments, pastes, varnishes, bandaging, posture, etc. The even compression of the skin from prolonged immersion in *water* is sometimes of marked effect, not only on the superficial surface, but as well upon the tissues beneath. *Thermal* effects may also be obtained through this medium. Mechanical treatment of the skin, if not alone curative, promotes comfort, which is no unimportant feature of most remedial measures.

Cleansing, soothing (and practically non-medicinal) *lotions* may contain *peroxide of hydrogen*, one part of the ten volume strength to two to five parts of water; *boric acid* in saturated solution or reduced one-half with water; *borax* in two to six grains to the ounce of water; *boro-glyceride* (fifty per cent.), one part to five to twenty of water; *carbolic acid*, one part to sixty of water; *benzoic acid*, one to fifteen grains to the ounce of water; *bicarbonate of soda*, five to ten grains to the ounce; *electrozone*, one part to four of water; *enzymol*, one part to one or two of water. Common *salt* may sometimes be added to water with advantage for general use, and *alcohol* can be used diluted with ninety per cent. of water, up to its full strength. A small proportion of *glycerine* may be added to lotions sometimes with advantage, but glycerine in large per cent. is seldom of value. *Soft soap* made by the addition of caustic potash in an excess of three per cent. to an animal fat, may be necessary for its deterative, stimulating or mildly destructive effects.

Oils, such as the *sweet almond*, *castor*, *cotton-seed* or *olive*, can be em-

ployed alone, or more often combined with other substances, especially with more solid fats to lessen their consistency. Simple *ointments* may consist of fresh *lard* alone, or combined with *wax* to give it firmness; of *lanolin* combined with sweet almond or olive oil to lessen its adhesive qualities; and of *vaseline* alone or combined with paraffin in the proportion of two to one. Neither vaseline nor lanolin is adapted for application in acute inflammation. The wide use of *oxide of zinc* ointment probably comes from its admirable protective qualities and its total medicinal inertness. It can be applied as freely as the simple fats; the benzoated is occasionally preferable. *Oxide* or *subnitrate of bismuth* in ten to twenty grains to the ounce is also protective and mildly antiseptic; *salicylic acid* in five to twenty-five grains to the ounce of simple ointment appears to have a purely mechanical effect on the thickened epidermis, loosening and separating the cornified epithelia. Applied to non-hypertrophic skin it may produce decided pathogenetic effects. *Boric acid* in fine powder of ten to thirty grains to the ounce of lard or lanolin ointment is alone protective and gently antiseptic. The same may be said of *gomenol* (five per cent.), *gallanol* (one to three per cent.), *calendula* (five to twenty-five per cent.) and *ammoniated mercury* (one per cent.), each in a simple ointment.

For antipruritic effects *carbolic acid*, *thiol*, *ichthyol*, *adrenalin*, *orthoform*, *iodoform*, *calamine*, *resorcin*, etc., are used in simple ointment, in rose water, dilute alcohol, glycerine or in a combination of these, or in some alkaline vehicle like the milk of magnesia.

Inert or hygroscopic *powders* may frequently serve to protect surfaces and prevent parasitic invasion. The simple powders of *finely pulverized starch*, *rice*, *talc*, *kaolin*, *lycopodium*, etc., will often suffice alone. When there is moisture to be neutralized the addition of impalpable *boric acid* powder to any of the above, except lycopodium, increases their efficiency, and *oxide of zinc* adds to their soothing qualities. *Gallanol* in five to thirty grains to the ounce of simple powder gives to it sometimes increased efficacy when the skin is sensitive and tender. The compound *stearate of zinc* powder is of special value on dry opposing surfaces. It may be necessary to procure a mild stimulating, antipruritic, or antiseptic effect, and for this purpose *iodoform*, *aristol.* *europfen*, *nosopfen*, *ichthyol*, *resorcin*, *bismuth*, *acetanilid*, *calamine*, or *carbolic acid*, in powder form, may be added to the simple dolomol or stearate of zinc compound.

Occlusive protection is rarely adapted to other than small areas of comparatively immobile skin. Ordinary *collodion* is sometimes of service painted over a patch before exudation has begun, or over dry lesions after removal of the scales. It serves the double purpose of hermetical protection and mechanical compression on the over-full blood-vessels. Over the thickened horny tissue the addition of three per cent. or less of salicylic acid gives to it a special effect in removing the corneous epithelia. A ten per cent. solution of gutta percha in chloroform, known as *traumaticin*, is sometimes to be preferred to collodion, especially when it is desirable to incorporate other

substances with it, as oxide of zinc or chrysarobin; the latter, however, is only used for its pathogenetic effect. *Pastes* are flexible applications which have little advantage over other mechanically acting applications. The *soft* pastes have moderate absorbing properties which may be of value in an occlusive dressing and the further advantage of ready application without heating. *Lassar's paste* consists of powdered starch and oxide of zinc, of each two drachms, vaseline one-half ounce. *Ihle's paste* is composed of equal parts of lanolin, vaseline, starch and zinc oxide. To these pastes other substances are added to give them medicinal powers. They are not essential to their protective function. *Hard* pastes contain gelatin and glycerine in some proportion. One of Unna's pastes is as good as any, perhaps. It consists of gelatin and oxide of zinc, each a drachm and a half, glycerine three drachms, distilled water four drachms. When used it has to be melted in a vessel placed in hot water; it is then painted on the part and a layer of cotton-wool placed over it to prevent its adhering to the clothing. It is only adapted to dry surfaces, and then only in cool weather. It has been used as a vehicle for other substances, but is inferior to other vehicles where pathogenetic effects are desired. *Varnishes*, so-called, may be occasionally useful. One of the best is *Elliott's bassorin varnish*, composed of bassorin forty-eight parts, dextrin twenty-five parts, glycerine ten parts, water seventeen parts. It is more stable than some varnishes which have been recommended, and it serves the purpose of an impermeable covering for small, dry patches of skin.

Adhesive plaster may be applied for support, for pressure or to forcibly stretch the skin as in its application to remove wrinkles.

Operative procedures in cutaneous diseases are of the simpler sort and consist of incision, excision, enucleation, scarification, curetting, skin-grafting and the varied applications of electricity and other physical agents. Many of these methods are pathogenetic, causal or mechanical as well as operative, but for the sake of brevity they have not been mentioned before.

INSTRUMENTS.—The use of the *curette*, the *lances*, the *comedone extractor*, the *nævus*, *milium*, *irido-platinum* and *electrolytic needles*, the *epilating* and *grappling forceps*, the *cutisector*, the *scarifying spud*, the *multiple scarifier*, the *needle holder*, the *pleximeter* and the various *lenses* is well understood and needs no further description beyond what will be found in the text. *Plastic surgery* may be useful in a few cases, and the same may be said of *skin grafting* as recommended by Reverdin and Thiersch.



FIG. 5.—Epilating Forceps.



FIG. 6.—Electrolytic Knife.



FIG. 7.—Irido-platinum Needle.



FIG. 8.—Piffard's Grappling Forceps.



FIG. 9.—Piffard's Cutisector.



FIG. 10.—Miliun Needle.



FIG. 11.—Scarifying Spud.

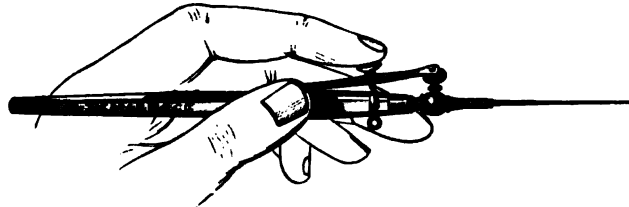


FIG. 12.—Fox's Needle for Removing Hair by Electrolysis.



FIG. 13.—Nævus Needle.

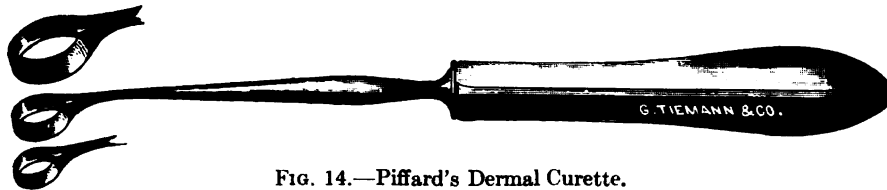


FIG. 14.—Piffard's Dermal Curette.

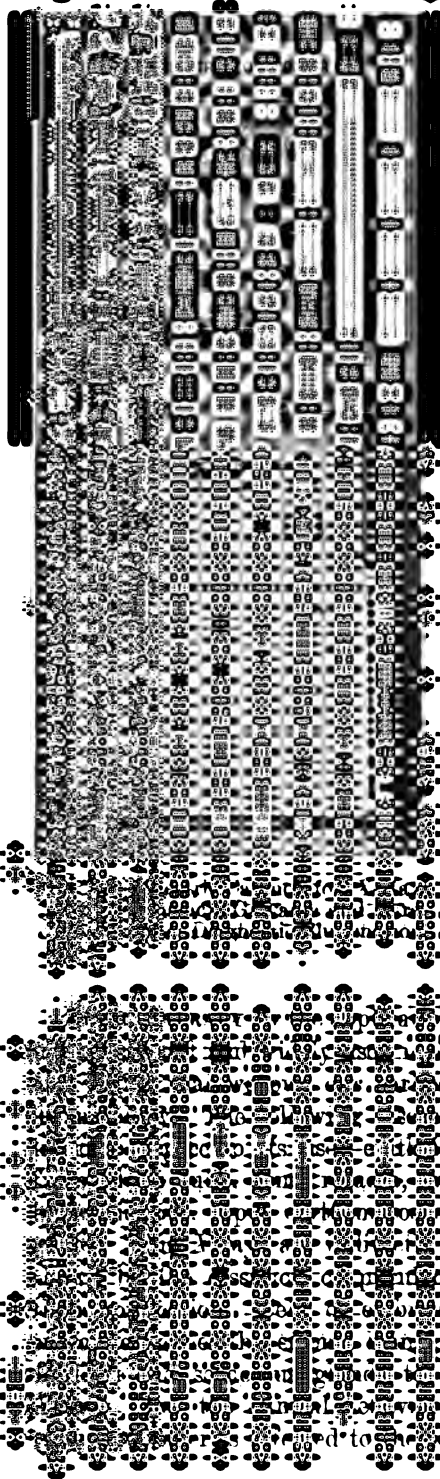


FIG. 15.—Hess' Glass Pleximeter.



FIG. 16.—Piffard's Acne Lancet and Comedone Extractor.

APPENDIX



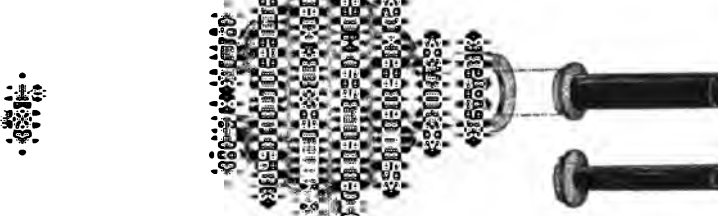
ELECTRICITY.—Every year notes further advances in the use of the physical phenomena, and to-day no one, engaged in the practice of dermatology, can afford to be without a complete electrical outfit. The cabinet, as shown in the illustration, is a convenient and space-saving contrivance, because from it the X-rays, high frequency, galvanic and faradic currents, electrolytic power, diagnostic lamp, sinusoidal effects, and cautery may be obtained.

The *galvano-cautery* and the *thermo-cautery* (Paquelin-knife) are used for their caustic and destructive effect, especially in lupus vulgaris involving the mucous membranes. *General galvanism* has been used as a sedative while it has been used locally for pruritus and Raynaud's disease and for the relief of the pain in herpes zoster. *Faradic* and *static* electricity are not used for specific purposes in dermatology, but on the same indications that would call for their use in general medicine.

Electrolysis accomplished by the aid of a galvanic battery is a useful agent in pertrichosis, telangiectasis, warts and other new growths. Under the discussion of the first named disease will be found a description of the technique.

The Röntgen, or X-rays, is probably the most important of physical therapy. It is to Freund that the knowledge of the use of these rays in dermatology may be mentioned as having responded to the treatment of lupus vulgaris and other forms of skin disease, ringworm, favus, eczema, psoriasis, melanoid, sarcoma cutis and mycosis fungoides, through tissue reaction, as is evidenced by discharges in eczema and cancer after the type become degenerated without the aid of the rays, and hence it is possible for hair to become atrophied when subjected to the destructive pathological action of the Röntgen rays. *Röntgen Rays Dermatitis.*

be used—either the static machine or storage batteries attached. The primary, which should be furnished with a spark gap of 30 cm. each possesses individual advantages, and interrupters (both using mercury), and a voltmeter, ammeter and frequency meter, respectively, voltage, amperage and frequency, usually placed between the patient and the electrodes. The area which is to be treated should be one-sixteenth of an inch thick and the electrode, which is one thirty-second of an inch in diameter, is sufficient for the hood (see illustration), is a convenient one to be used. Aluminum screens have



under Hood.

lesions, so as to intercept the rays. The subject of tubes admits of much honest discussion as "hard" and "soft." The former is of the current, because the vacuum tubes are penetrating, contain fewer of the rays, the skin is not affected quickly, but only by the characteristics of the soft tube. The characteristics of the soft tube are that are better suited for fluoroscopic work and bones is more evident. When attached to all tubes, because tubes often a hard tube to some degree. A new one is an older one.

There is no exact method applicable to all in measuring the radiations of any single tube. Variations must be expected. To offset this, a treatment should always be instituted before a patient is given daily for three or four weeks of five inches. If no unusual reactions are seen, the regular treatment may

TMENT

suggested that the coil should furnish
 should be a primary current of 12 volts and
 100 to 1,000 per minute; that the tube

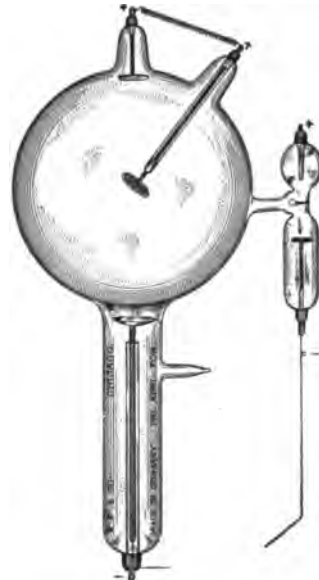


FIG. 21.

Crooke's tubes, FIG. 21 showing a tube with
 vacuum adjuster.

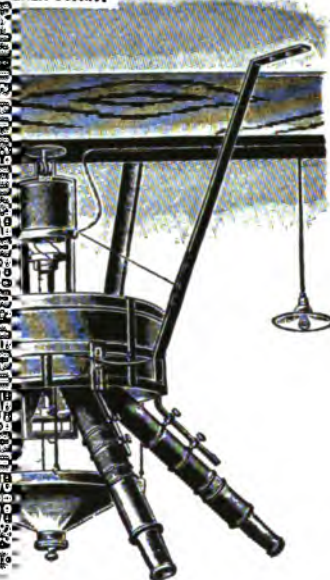
the lesion treated, gradually reducing
 of the first regular treatment should
 gradually to fifteen minutes. Treat-
 three times in a week. As regards the
 neral sense that soft or moderately soft
 superficial skin lesions. However, a reac-
 treatment stopped, because a long continued
 of tube is used. For epithelioma, while a
 quality should depend upon the duration,
 lesion. It is well to remember what
 or conditions being equal, "the intensity
 length of the primary current, and the
 of the distance of the tube from the

pericidal properties of light have been
 used for Finsen of Copenhagen in 1896
 light-therapy. His method may briefly be
 number of chemical rays of light on a
 the heat rays. Exsanguination of the

per penetration of the light and to

Compressors made of two quartz
as to leave space between, through
prevent the heating of the lens, are
this Institute, but mechanical means
compressors in place. Sunlight was
light of 60 to 80 amperes and about
enclosed in a metal tube which was
heat rays. The lenses are made of
7 cm. in diameter. The rays are
end of the tube. An outer compart-
the whole apparatus, thus affording
Four patients may be treated by
sensors in each quadrant of the circle.

FRANKLIN CO. N.Y.



us for Phototherapy.

by Finsen and Reyn, which embraces
ts of one lens of shorter focal dis-
is so directed that the strongest
only 20 amperes and 55 volts are

pendicularly upon the affected area

Lenses of condensers and com-
y should be washed with antiseptic
should not be allowed on the lenses,
m dust and dirt. Exposures vary

from fifteen minutes to two hours, and are repeated when the reaction has subsided, which takes from one to two weeks. The reaction usually develops in six to twenty-four hours, and may vary from an erythema to a vesicular or bullous dermatitis, which can be readily distinguished from the normal skin. No necrosis of healthy tissue results, hence scarring is minimized. Pigmentations and dilatation of superficial blood-vessels may persist beyond the ordinary time for resolution. The painlessness of actual treatment and the smooth, neat scars are points to be recommended.

There are disadvantages attached to this use of actinic rays. For extensive diseased areas it is sure to prove tedious and expensive, because only small areas averaging less than an inch in diameter can be treated at one time. The parts to be treated must be free from exudation and capable of exsanguination. Mucous membranes are inaccessible. Further, it must be remembered the penetration of the rays is limited. A thorough and careful technique is the best element of success in the treatment of those diseases which are responsive to this method. Among these may be mentioned lupus vulgaris, for which it is specially effective, and some cases of lupus erythematosus, alopecia areata, rosacea, eczema, vascular nævi, etc. For the special treatment of these diseases the reader is referred to their respective headings in Part II of this book.

In order to decrease the expense and to obtain more rapid results, a number of modifications of the Finsen apparatus have been put on the market. While not attempting to lessen the virtue of these machines for some few purposes, the writer must enter his protest against the comparison of their work with that of the original Finsen apparatus, because such records are not trustworthy nor scientific, and hinder rather than advance the cause of phototherapy. Chief among these modifications are the Lortet-Genoud and the London Hospital lamps, in which the source of light can be brought within two inches of the surface which is to be treated. Exsanguination is produced by pressing the affected part firmly on the face of the front lens. An arc light, having carbon electrodes, an amperage of 10 to 12 and a voltage of 55, is used. Many smaller, less reliable and less expensive lamps are made. In these, iron and other metal electrodes, or the high-tension condenser spark, are used to produce the ultra-violet rays in varying quantity. Naturally these have no penetrating power, since the rays are absorbed by the epidermis and hence are suitable for superficial skin lesions only.

BECQUEREL RAYS.—Under this term are included those phenomena noted by Becquerel in 1896 when he demonstrated the radiating power of uranium and some of its salts. Also, we include the emanations and radiations given off by radium, which the Curies separate together with polonium from pitchblende. From radium and its salts are derived at least three varieties of rays, one has bactericidal and slightly penetrating properties, while the other two seem similar to the cathode and X-rays respectively. The action of radium, clinically and pathologically, is similar in many respects to the Röntgen rays, and hence its use in all of the diseases which have been treated by the latter

agency. Good results have been reported from radium-therapy in lupus vulgaris, epithelioma, eczema, pruritus and other diseases, but the small supply of relatively weak activity that has been obtainable has effectually prevented scientific research. The writer has used specimens of 5,000, 7,000, 20,000 and 200,000 radio-activity with results which will be mentioned in the following pages.

Inasmuch as recent investigations have proven that the so-called alpha rays and the emanations of radium are lost if the radium is sealed in a container, it seems reasonable that the radium should be in such a form that the surrounding walls will not intercept the alpha rays or the emanations. To this end Lieber of New York has produced what he terms radium coatings, radium being dissolved and a celluloid rod, or disc, or other instrument being dipped in the solution. The solvent then evaporates and leaves the coating of radium, and this is then fixed with a layer of collodion. The collodion film permits the passage of both alpha rays and emanations. A hollow tube can be similarly coated. This plan enables one to apply radium to any part that is locally accessible.

Variable results have followed the use of this method, and only recently a number of cases have been reported which were much aggravated after such treatment. It would seem, inasmuch as after their use no radium could be discovered on the rods by the most delicate tests, that the particles had actually lodged in the diseased parts and caused a radium dermatitis.

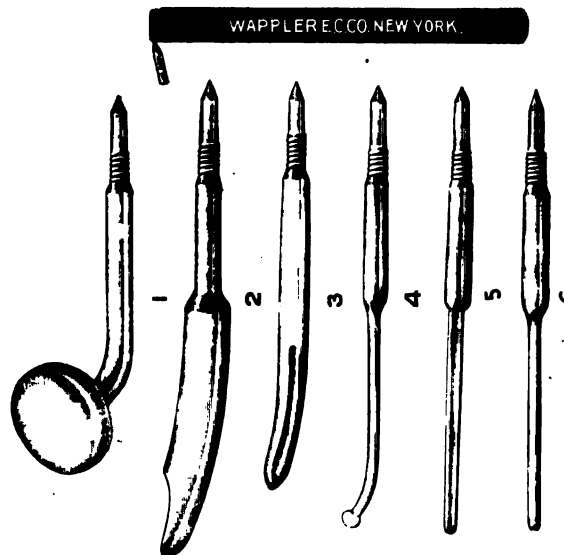
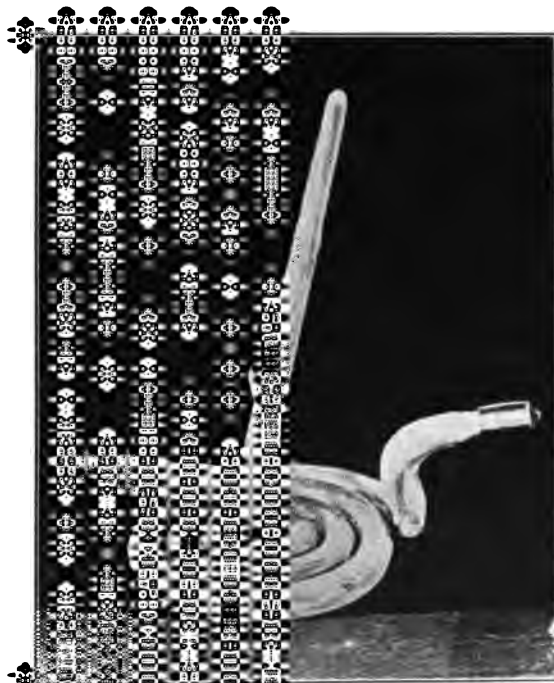


FIG. 23.—Glass Vacuum Electrodes for Administering the High Frequency Currents.

HIGH TENSION AND FREQUENCY CURRENTS.—While these were first introduced into general therapeutics by D'Arsonval, it is to Oudin that we owe our

APPENDIX

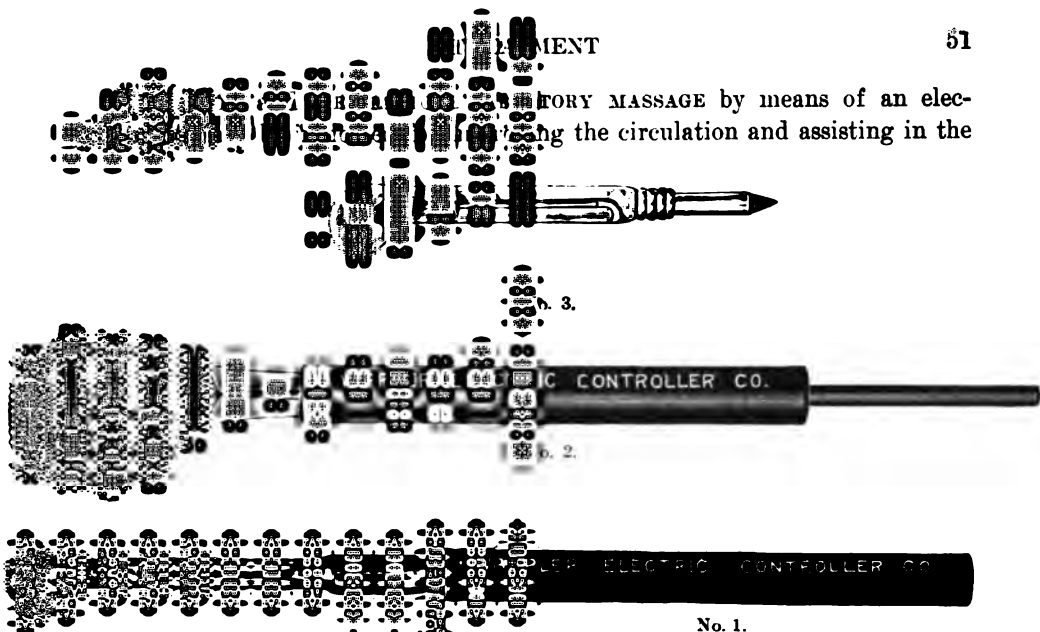
diseases of the skin. There are a number of currents of which the auto-condensation, the D'Arsonval shunt, the resonator and the Oudin are the most important. The last two demand our attention. Of these the Oudin and their effect is nearly identical with the Oudin resonator in the treatment of seborrhœa, alopecia areata, eczema, pruritus and the various ulcers, varicose ulcers, etc., it should be noted that results have been achieved by its use in malignant diseases. It has been made for it in many malignant diseases administered through glass vacuum electrode held near the diseased area, but not in cases of less often.



Glass Vacuum Electrode for High Frequency Currents.

The electrode, which is connected with the Oudin current, is brought in contact with the surface, and has been used in cases of circumscribed eczema, and in the treatment of various other diseases. For further details of the uses of these currents the reader is referred to the literature.

ATORY MASSAGE by means of an elec-
ing the circulation and assisting in the



as with and without Handles.

In cases of scleroderma, acne indu-
n successfully used. The indications
he same as are found in general medi-



ments for Vibratory and Pneumo-massage
utery.

cine. The motor shown in the illustration has attachments for cautery as well as for mechanical vibration and pneumo-massage, and hence is a convenient type of apparatus.

Other physical agents, such as *radiant heat, freezing, liquid air, immersion in oxygen*, etc., have been recommended for ulcers of all types, lupus vulgaris, nævus, warts, epithelioma and other diseases, but they cannot be said to possess any advantages over the more scientific methods heretofore mentioned.

CLASSIFICATION

THE test of any grouping of diseases is its practical utility for the purposes of study, diagnosis and treatment. It is not necessary that the classification should be based upon one line of investigation, as pathology, etiology, etc., so long as it represents the greatest ensemble of facts and is in harmony with scientific progress in its domain.

Historical.—Attempts at systematic classification began with the *regional*, by Mercurialis, in the latter part of the sixteenth century. He grouped skin diseases as they were situated on different regions of the body, without special regard for the nature of the lesions themselves. This arrangement seems to have sufficed for upward of a hundred and fifty years, when Turner divided cutaneous diseases into two general classes,—of the *head*, and of the *body*,—each with several divisions and subdivisions, intended to show the differences of the lesions as to shape and other qualities, while to eruptions of uncertain location he gave such names as syphilides, psorides, scrofulides, ephilides, etc., some of which continue in use at the present day. In 1776 Plenck made the first classification based on the *objective character* of the primary and secondary lesions, or the parts involved, as follows: (1) Macules, (2) Pustules, (3) Vesicles, (4) Bullæ, (5) Papules, (6) Crusts, (7) Scales, (8) Callosities, (9) Excrescences, (10) Ulcers, (11) Wounds, (12) Cutaneous Insects, (13) Diseases of the Nails, (14) Diseases of the Hair.

Willan, and, subsequently, Bateman, modified Plenck's classification, reducing the different classes to nine, as follows: Papules, Scales, Exanthemata, Bullæ, Pustules, Vesicles, Tubercles, Macules, and Dermal Excrescences. Next in importance came the *anatomical* classification of Erasmus Wilson. He grouped skin diseases according to the part in which they originated, in four classes: (1) Diseases of the Derma, (2) Diseases of the Sudoriparous Glands, (3) Diseases of the Sebaceous Glands, (4) Diseases of Hair and hair follicles. A simple *physiological* plan of grouping cutaneous diseases was formulated by Baresprung in three divisions: (1) Disturbances of Innervation, (2) Disturbances of Secretion, (3) Disturbances of Nutrition.

Bazin and others of the French School sought, from time to time, to classify skin diseases according to their real or supposed causes. Bazin grouped all cutaneous diseases in three divisions: (1) Affections due to external causes, (2) Affections of internal origin, including those consecutive to some constitutional disorder, (3) Cutaneous deformities, congenital or acquired. In the effort to perfect this etiological system, a relation was assumed to exist between certain constitutional diseases and cutaneous eruptions, which had little foundation in fact. The increasing knowledge of the causes of skin lesions will probably permit, at no distant day, a practical classification of cutaneous diseases according to their principal etiological relations. Unna, Piffard and others have proposed classifications in this line, but without any general adoption by others. The classification of Hebra, published in 1845, marks the greatest advance in the method of grouping skin diseases. This plan classifies most diseases of the skin upon the evidences of their *path-*

ological anatomy. In one group only the etiological factors are recognized: in diseases caused by parasites. Some groups contain diseases which are wholly different in nature and development, and not related in causation. Nevertheless, Hebra's method, with various modifications, is the one adopted by most dermatologists of the present time as the best framework for practical study.

Hebra's system groups cutaneous diseases in twelve classes: (1) Hyperæmias, (2) Anæmias, (3) Anomalies, (4) Exudations, (5) Hemorrhages, (6) Hypertrophies, (7) Atrophies, (8) Neoplasms, (9) Pseudo-plasms, (10) Ulcerations, (11) Neuroses, (12) Diseases caused by parasites.

As illustrating the great endeavor towards scientific classification of diseases should be mentioned the radical system of Auspitz (1881), as elaborated by Bronson, in 1887, wherein the *anatomical* seat of the disease is taken as the basis for classes, and the *pedigree* of diseases is shown by subdivisions into orders, tribes, families, genera, and species. This arrangement of diseases, while undoubtedly scientific, is too complex and extended in detail to serve the student as a basis for the satisfactory study of skin diseases.

Leaving out of consideration the last plan of grouping cutaneous affections, it will be found that no one furnishes a systematic classification of sufficient scope which is harmonious in all its details. Nearly all have contributed in some degree to build up a working system, modified in one way and another by different authors, but looked upon by all as largely provisional in character, subject to revision with the advancement of knowledge concerning the origin and nature of morbid processes in the cutaneous structures. Owing to the unavoidable defects of all systems of classification, some writers have contented themselves by discussing skin diseases in alphabetical order. Bearing in mind the objects of classification, the simplest provisional system which can meet those requirements and follow the line of the greatest progress in medical science would seem to be the most desirable under existing conditions.

As modern medical research is chiefly concerned in the investigation of the causes of disease, it follows that, in such a system, prominence must be given to the *etiological* element. The classification used in this work is, therefore, a simple rearrangement, designed to show, so far as practicable, the general pathogenesis, without losing the value of the anatomico-pathological system commonly in vogue. The test of its utility in teaching further strengthens the decision to incorporate it here. To avoid a confusion of names, some diseases are included in a class not warranted by their etiology. Thus the erythemas are kept together under the general head of idiopathic affections, though some are, without question, neuropathic in relationship. Diseases of the appendages of the skin and new growths are each grouped in a class by themselves, because it would be impracticable, if not impossible, to otherwise place those diseases and meet the requirements of a classification for clinical purposes.

Where the etiology of a disease, characterized by a new growth, is clear, it has been placed in a different group. Although there are diseases placed in one or another class whose relationship thereto is doubtful, it seems to the author expedient to temporarily waive the doubt rather than form a non-classifiable group. It is hoped the scope of the classification will be found sufficiently elastic to permit the transference of a disease from one group

to another, as increasing knowledge of its pathogenesis may warrant. Lastly, it is expected that this method of grouping skin diseases will also, in a measure, classify and simplify treatment, especially for students and practitioners who are accustomed to individualize cases for the consecutive choice of therapeutic methods.

CLASS I.—Diseases of the Cutaneous Appendages.

A. SWEAT GLANDS.	<i>Nature.</i>	<i>Pathogenesis.</i>
Anidrosis	Absence of sweat,	Neuropathic, etc.
Hyperidrosis	Excessive sweat	Neuropathic, etc.
Bromidrosis	Abnormal odor of sweat	Parasitic, etc.
Uridrosis	Abnormal odor of sweat	
Chromidrosis	Abnormal color of sweat	Neuropathic, etc.
Hematidrosis	Abnormal color of sweat	Neuropathic, etc.
Phosphorescent sweat	Abnormal color of sweat	—
Hydrocystoma	Retained sweat	Idiopathic
Miliaria (sudamina)	Retained sweat	Symptomatic
Miliaria rubra	Inflammation	Symptomatic
Hidradenitis suppurativa	Inflammation	—
B. OIL GLANDS.		
Asteatosis	Absence of secretion	Deuteropathic
Seborrhœa sicca	Excessive secretion	—
Seborrhœa oleosa	Excessive secretion	—
Seborrhœic dermatitis	Excessive secretion	Idiopathic
Comedo	Retained secretion	Idiopathic
Milium	Retained secretion	Idiopathic
Steatoma (wen)	Retained secretion	Idiopathic
Acne simplex	Inflammation	—
Acne indurata	Inflammation	—
Acne varioliformis	Inflammation	—
C. HAIR.		
Hypertrichosis	Excessive growth	Neuropathic
Trichiasis	Anomalous growth	—
Distichiasis	Anomalous growth	—
Fragilitas crinium	Defective growth	Symptomatic, etc.
Trichorrhexis nodosa	Defective growth	Neuropathic
Monilethrix	Defective growth	Neuropathic
Lepothrix	Defective growth	Parasitic
Tinea nodosa	Defective growth	Parasitic
Piedra	Nodular growth	Parasitic
Canities	Atrophy of pigment	Neuropathic
Plica	Matted hair	Idiopathic
Alopecia	Loss of hair	—
Alopecia areata	Loss of hair in patches	Parasitic, neuropathic
Folliculitis decalvans	Inflammation	—
Dermatitis papillaris capillitii	Inflammation and keloid	—
Conglomerate suppurative perfolliculitis	Inflammation	—

CLASS I.—Diseases of the Cutaneous Appendages—*Continued.*

D. NAILS.	<i>Nature.</i>	<i>Pathogenesis.</i>
Onychauxis	Excessive growth	_____
Pterygium	Excessive growth of nail fold	_____
Onychomycosis	Fungus growth	Parasitic
Atrophia unguis	Deficient nutrition	_____
Spoon nails	Deficient nutrition	_____
Reedy nails	Deficient nutrition	_____
White nails	Deficient pigment	_____
Onychia	Inflammation	_____

CLASS II.—Idiopathic Affections.

	<i>General Character.</i>	<i>Most Prominent Lesions.</i>
Lentigo	Hypertrophy of pigment	Macules
Chloasma	Hypertrophy of pigment	Macules
Erythema simplex		
Erythema neonatorum	Hyperæmic	Erythema
Erythema intertrigo	Hyperæmic	Erythema
Erythema traumaticum	Hyperæmic	Erythema
Erythema caloricum	Hyperæmic and pigmentary	Erythema
Erythema scarlatiniforme	Hyperæmic	Erythema, scales
Erythema exudativum		
Erythema multiforme	Hyperæmic	Multiform
Erythema iris	Hyperæmic	Vesicles
Erythema nodosum	Hyperæmic	Nodular
Dermatitis calorica		
Dermatitis ambustionis	Inflammatory	Multiform
Dermatitis congelationis	Inflammatory	Multiform
Dermatitis traumatica	Inflammatory	Multiform
Röntgen-ray dermatitis	Inflammatory	Multiform
Dermatitis medicamentosa		
Drug eruptions	Inflammatory	Multiform
Vaccination eruptions	Inflammatory	Multiform
Dermatitis venenata	Inflammatory	Multiform
Feigned eruptions	Inflammatory	Multiform
Trade eruptions	Inflammatory	Multiform

CLASS III.—Diathetic Affections.

Eczema	Inflammatory	Multiple lesions
Psoriasis	Inflammatory	Scales on a red base
Dermatitis exfoliativa	Inflammatory	Patches, large scales
Dermatitis exfoliativa epidemica	Inflammatory	Patches, large scales
Dermatitis exfoliativa neonatorum	Inflammatory	Patches, large scales
Dermatitis gangrenosa	Inflammatory	Gangrenous ulcers
Multiple gangrene	Inflammatory	Gangrenous ulcers
Hysterical gangrene	Inflammatory	Gangrenous ulcers
Diabetic gangrene	Inflammatory	Gangrenous ulcers
Dermatitis gangrenosa infantum	Inflammatory	Gangrenous ulcers

CLASS III.—*Diathetic Affections—Continued.*

Varicose ulcer	Inflammatory	Ulcers
Pityriasis rosea	Inflammatory	Patches, fine scales
Lichen ruber	Inflammatory	Papules and scales
Lichen planus	Inflammatory	Flat papules
Parakaratosis variegata	Inflammatory	Papules
Keratosis pilaris	Hypertrophic	Papules
Keratosis senilis	Hypertrophic	Papules, warty growths
Keratosis palmaris et plantaris	Hypertrophic	Multiple
Ichthyosis	Hypertrophic	Small and large scales
Sclerema neonatorum	Hypertrophic	Induration
Œdema neonatorum	Hypertrophic	Œdema

CLASS IV.—*Neuropathic Affections.*

	<i>Nature.</i>	
Hyperæsthesia	Sensory disturbances	————
Anæsthesia	Sensory disturbances	————
Paræsthesia	Sensory disturbances	————
Dermatalgia	Sensory disturbances	————
Pruritus	Sensory disturbances	Excoriations
Prurigo	Senso-motor disturbances	Papules
Urticaria	Senso-motor disturbances	Wheals
Urticaria pigmentosa	Senso-motor disturbances	Wheals and pigmentation
Angioneurotic œdema	Senso-motor disturbances	Swelling
Purpura	Vaso-motor disturbances	Extravasations
Rosacea	Vaso-motor disturbances	Multiform
Herpes	Tropho-sensory disturbances	Vesicles
Herpes zoster	Tropho-sensory disturbances	Vesicles
Impetigo herpetiformis	Tropho-sensory disturbances	Grouped pustules
Dermatitis herpetiformis	Tropho-sensory disturbances	Multiform
Dermatitis repens	Tropho-sensory disturbances	Multiform
Pellagra	Tropho-sensory disturbances	Multiform
Acrodynia	Tropho-sensory disturbances	Multiform
Hydroa	Vaso-motor disturbances	Bullæ
Pompholyx	Vaso-motor disturbances	Vesicles
Pemphigus	Vaso-motor disturbances	Bullæ
Scleroderma	Vaso-motor disturbances	Induration
Leucoderma (vitiligo)	Trophic disturbances	White patches
Atrophia senilis	Trophic disturbances	Pigmentations
Atrophia maculosa et striata	Trophic disturbances	White lines and spots
Kraurosis vulvæ	Trophic disturbances	Local atrophy
Glossy skin	Trophic disturbances	Smooth skin
Perforating ulcer of the foot	Trophic disturbances	Ulcers
Trophic ulcers	Trophic disturbances	Ulcers
Symmetrical gangrene of the extremities	Trophic disturbances	Gangrene
Ainhum	Trophic disturbances	Circular atrophy
Syringomyelia	Trophic disturbances	Multiform

CLASS V.—Parasitic Affections.

	<i>Parts Affected.</i>	<i>Most Prominent Lesions.</i>
A. ANIMAL ORGANISMS		
Scabies	Skin	Multiple lesions
Pediculosis corporis	Skin	Hemorrhagic points and excoriations
Pediculosis capitis	Scalp	Excoriations
Pediculosis pubis	Hairy surfaces	Excoriations and papules
Pulix irritans (flea)	Skin	Wheals
Pulix penetrans (flea)	Skin	Various
Cimex lectularius (bedbug)	Skin	Wheals
Culix pipens (mosquito, gnats, etc.)	Skin	Wheals
Leptus autumnalis (har- vest bug)	Skin	Wheals, papules
Ixodes ricinus	Skin	Wheals
Dermanyssus avium	Skin	Papules
Filaria medinensis (guinea worm)	Subcutaneous tissue	Abscess
Cysticercus cellulosæ cutis	Subcutaneous tissue	Tumors
Echinococcus	Subcutaneous tissue	Tumors and vesicles
Demodex folliculorum	Sebaceous glands	Papules and pigmentation
B. VEGETABLE ORGANISMS		
Favus	Hair and skin	Yellow crusts
Tinea trichophytina (ringworm)		
(1) Tinea circinata	Skin	Patches with branny scales
(2) Tinea tonsurans	Hair	Patches with scales
(3) Tinea barbæ	Hair	Patches with scales, etc.
Tinea versicolor	Skin	Patches, fine scales
Tinea imbricata	Skin	Papules in circles
Erythrasma	Skin	Desquamating spots
Dhobie itch	Skin	Papulo-pustular
Blastomycosis	Skin	Patches
Myringomycosis	Ear	Patches
Pinto disease	Skin	Desquamating spots
Actinomycosis of the skin	Skin and deeper tissues	Nodules
Mycetoma	Skin and deeper tissues	Nodules
Impetigo simplex	Skin	Pustules
Impetigo contagiosa	Skin	Vesico pustules
Ecthyma	Skin	Large pustules
Sycosis	Hair follicles	Papules, pustules
Furunculus	Hair follicles and ad- jacent tissues	Pustules and abscesses
Carbunculus	Skin and deeper tissues	Multiple abscess
Anthrax	Skin	Multiform
Dissection wounds	Skin	Pustules
Rhinoscleroma	Nose	Tumor
Oriental boil	Skin	Tubercles, ulcers

CLASS V.—Parasitic Affections—*Continued.*

Phagedæna tropica	Skin and deeper tissues	Pustules, ulcers
Elephantiasis	Entire skin	Enlargement
	<i>Pathological Character.</i>	<i>Process.</i>
Tuberculosis cutis orificialis	New growth	Infiltrating
Tuberculosis verrucosa	New growth	Infiltrating
Lupus vulgaris	New growth	Infiltrating
Scrofuloderma	New growth	Infiltrating
Lichen scrofulosus	New growth	Infiltrating
Erythema induratum	New growth	Infiltrating
Syphilis	New growth	Infiltrating
Leprosy	New growth	Infiltrating
Yaws	New growth	Infiltrating
Equinia	Inflammation	Infiltrating
Erysipelas	Inflammation	Infiltrating
Erysipeloid	Inflammation	Infiltrating

CLASS VI.—New Growths.

	<i>Chief Structure Involved.</i>	<i>General Character.</i>
A. BENIGN CONNECTIVE TISSUE GROWTHS.		
Fibroma	Connective tissue	Benign
Keloid	Connective tissue	Benign
Cicatrix	Connective tissue	Benign
Xanthoma	Connective tissue	Benign
Xanthoma diabeticorum	Connective tissue	Benign
Lipoma	Fat tissue	Benign
Myoma	Muscular tissue	Benign
Neuroma	Connective tissue	Benign
Angioma		
Nævus vasculosus	Blood-vessels	Benign
Hæmatangioma	Blood-vessels	Benign
Telangiectasis	Blood-vessels	Benign
Angioma serpiginosum	Blood-vessels	Benign
Angiokeratoma	Blood-vessels, etc.	Benign
Lymphangioma	Lymph vessels	Benign
Lymphangioma tuberosum multiplex	Lymph vessels	Benign
Nævus pigmentosus	Pigment, etc.	Benign
Acanthosis nigricans	Papillary hypertrophy	Benign
Multiple tumor-like new growths	Glandular tissue	Benign
Colloid degeneration of the skin	Connective tissue	Degenerative
Lupus erythematosus	Corium	Infiltrating
Myxœdema	Skin and subcutaneous tissue	Hypertrophic
Acromegally	Skin and subcutaneous tissue	Hypertrophic
B. BENIGN EPITHELIAL GROWTHS.		
Callositas	Epidermis	Hypertrophic
Clavus	Epidermis	Hypertrophic
Cornu cutaneum	Epidermis	Hypertrophic
Keratosis follicularis	Epidermis	Degenerative
Verruca	Epidermis, papillæ	Hypertrophic

CLASS VI.—New Growths—*Continued.*

Papilloma cutis	Papillæ	Hypertrophic
Molluscum contagiosum	Epidermis	Degenerative
Multiple benign cystic epithelioma	Epithelium	Benign
Adenoma	Connective tissue	Benign
Leucokeratosis buccalis	Papillæ	Benign

C. MALIGNANT EPITHELIAL GROWTHS.

Epithelioma	Epithelium	Malignant
Paget's disease	Epithelium	Malignant
Rodent ulcer	Epithelium	Malignant
Carcinoma cutis	Corium	Malignant

D. MALIGNANT CONNECTIVE TISSUE GROWTHS.

Sarcoma cutis	Corium	Malignant
Mycosis fungoides	Corium	Malignant
Xeroderma pigmentosum	Blood-vessels	Malignant
Verruga	Connective tissue	Malignant

PART II

SPECIAL DISEASES

CLASS I.—DISEASES OF THE CUTANEOUS APPENDAGES

A. DISEASES OF THE SWEAT GLANDS

THE perspiratory function is largely under the control of the nervous system. Whether there is one sweat centre or many, peripheral sweat ganglia or none, nerve supply from the spinal cord or from the sympathetic, a watery product only, or oily secretion also, remain undetermined. The quality and quantity of sweat may vary considerably within the limits of health, from differences of habits of living, exercise, etc. When there is a persistent departure from these limits of quality and quantity, *functional* disturbances exist; when an anatomical change in the glands or ducts is found, *organic* disease exists.

ANIDROSIS

DEFINITION.—A disorder of the perspiratory apparatus, in which the sweat is absent or notably diminished in quantity.

This condition is nearly always secondary in character and may be local or universal in extent. It is common in the areas affected by such diseases as ichthyosis, psoriasis, scleroderma, anæsthetic leprosy, some forms of eczema, neuralgia, and forms of paralysis. The polyuria of diabetes and albuminuria naturally diminish the perspiration. Injuries to nerve trunks may cause anidrosis, and it is present in many tropho-neuroses, until electrical irritability is restored. Finally, there are individuals who, from some idiosyncrasy, perspire little or none at all, under conditions of temperature, etc., which induce profuse perspiration in most people. Pruritis is often associated with anidrosis, and in such cases may be aggravated in the winter (*pruritis hiemalis*) or after a bath (*bath pruritis*).

Partial anidrosis occasions no disturbance, and the generalized type may lead to no discomfort, except under influences which usually occasion free sweating.

TREATMENT.—In purely symptomatic anidrosis the treatment should be directed to the primary disorder. Physiological treatment, by the use of water internally and externally, by cold sponging or shower baths, or combined with mechanical measures, as in the Turkish bath, shampooing and

massage, tend to improve the innervation and nutrition of the skin and stimulate secretion. The introduction of *vibratory mechanical massage* has simplified the main object to be attained, stimulation. *High frequency currents* have also proven satisfactory for the same purpose. Idiopathic anidrosis is rare and seldom marked enough to call for internal medication. See indications for *Alumina, Coca, Lycopodium* and *Nux moschata*.

HYPERIDROSIS

(*Idrosis, Sudatoria, Polydrosis, Hydrosis, Excessive sweating.*)

DEFINITION.—A disorder of the perspiratory apparatus, in which the secretion is excessive.

Natural or artificial warmth, active exercise, liberal ingestion of fluids, intense anxiety and other kindred emotions are natural promoters of active perspiration. In the absence of these stimuli, all excessive sweating is due to disease. Hyperidrosis may be general or local, slight or severe, of short duration or persistent. With the general varieties of excessive perspiration, such as occur in acute rheumatism, intermittent fever, phthisis and other wasting diseases, we are not here concerned. They form a part of the symptomatology of diseases treated by general practitioners.

The *local* forms most often seen occur in the axillæ and genital region, or on the palms of the hands and soles of the feet. These forms are usually *symmetrical*, and on the warmly covered parts are apt to be associated with offensive odor (bromidrosis), and, sometimes, with erythema, intertrigo or eczema. On the palms and soles the disorder is most common in young people, who suffer from cold extremities, due to feeble circulation, anæmia, etc. In aggravated cases there is more or less maceration of the epidermis, which may become shrivelled or flake off, leaving the parts tender to pressure. Hypertrophy of the outer layers of the epidermis of the palms, known as *tylosis*, is often preceded by or attended with excessive sweating of these surfaces. *One-sided* sweating, affecting the whole side, is rare. Less rarely, one limb, or one-half of the head supplied by the fifth nerve, is the seat of the disorder.

ETIOLOGY AND PATHOLOGY.—Whatever the underlying causes may be, there is no doubt that deranged innervation is the medium through which local hyperidrosis is produced, whether in the nature of stimulation of the cerebro-spinal system, paralysis of the sympathetic or peripheral change. The source may be in the cerebral centre, as has been observed in gumma and abscess of the brain; in the medulla, as noted in cases of excessive sweating, where tumors have been found at the post-mortem; in the cord, from lesions with aggravated reflexes; from injury to peripheral nerves, as reported by Weir Mitchell; from growths of any kind which interfere with the sympathetic. In women, disturbances of menstruation and hysteria may cause excessive local sweating. In the second stage of migraine there is free perspi-

ration. Symmetrical hyperidrosis of the palms or soles may be congenital, or very rarely hereditary. Usually, such cases are moderate in degree. The physiological experiments of Claude Bernard demonstrating that paralysis of the sympathetic produced hyperidrosis, and of Brown-Sequard, that stimulation of sensory fibres gave like results, are of special interest in relation to the pathology of this disorder. There does not appear any abnormality in the size of the glands or in their lining epithelia, in cases of hyperidrosis. The *prognosis* varies with the cause and the degree in which it is removable.

TREATMENT.—Remedial measures should be directed to the causal conditions which underlie abnormal sweating. If local defects of circulation or innervation exist, physiological and mechanical means may be employed, such as friction, exercise, cold baths, etc. Applications of very *hot water* to the parts, once or twice daily, followed by a dusting powder of *starch* and *boric acid* in equal parts, is very often beneficial. If there is a tenderness from maceration and friction, simple cerate or mutton tallow may be used in place of a dusting powder. Compound stearate of *zinc powder* is occasionally useful as a mechanical protective dressing. *Salicylic acid*, one part to six of talcum powder, may sometimes be used with advantage. When involving the feet only, daily foot baths of a one per cent. solution of *permanganate of potash* continued for two weeks, are beneficial. The editor has achieved splendid results with the application of *high frequency currents* to the axillæ twice a week, in cases limited to that region. Unna recommends one-half ounce of the tincture of *belladonna* in three ounces of eau de cologne for sweating of the hands. Most local treatment is, however, palliative, and we must look to general *physiological* means to remedy corresponding errors and to pathogenetic treatment to effect a cure. There are nearly always plenty of indications for a prescription, either in the general condition, in the peculiarity of the local disturbances, or in both combined. See indications for *Agaricus*, *Aurum mur.*, *Ant. crud.*, *Baryta carb.*, *Cocculus*, *Conium*, *Fluoric acid*, *Graph.*, *Hepar*, *Hypericum*, *Jaborandi*, *Nat. sul.*, *N. mur.*, *Nit. acid*, *Pet.*, *Puls.*, *Rhodod.*, *Sepia*, *Sil.*, *Sul.* and *Thuja*.

BROMIDROSIS

(*Osmidrosis*, *Fetid sweat*.)

DEFINITION.—Offensive odor of perspiration, either when secreted, or acquired soon after. Like hyperidrosis (which is frequently present at the same time) bromidrosis may be general or partial. The *local* forms are most common and usually affect the feet only, though the axillæ and about the genital region may be the seat of the disorder. In most cases the odor is not markedly offensive, and a few cases have been recorded where abnormal odors of the perspiration have been agreeable, such as that of pineapple, violets, etc. Bromidrosis of the feet is likely to be most dis-

gusting, and, in extreme cases, has been compared to the odor of putrid cheese, penetrating through stockings and shoes to such a degree as to make the victims shun indoor society. The associated hyperidrosis renders the feet sodden, often red at the borders; occasionally blisters form, and the tenderness may temporarily incapacitate the patient for walking.

ETIOLOGY AND PATHOLOGY.—Young people are most subject to local bromidrosis of the feet. Occupations which require much standing seem to favor it. A few cases are due to emotional influences; some to bacteria, and in others the causes are obscure. In nearly all cases the foul odor is due to decomposition of the fatty acids of the sweat after secretion. The sweat-soaked epidermis probably furnishes suitable soil for the growth of bacteria. Micrococci can be usually found between the toes unaffected with offensive sweating, similar to those found in cases of bromidrosis. Some were cultivated by Thin, and these he calls *Bacterium fætidum*. From the presence of these organisms he attributes the decomposition and consequent odor. The micrococci can be readily found by drying some of the sweat on a cover glass and staining it with methyl violet.

TREATMENT.—As hyperidrosis nearly always co-exists with bromidrosis, the indications for treatment are nearly the same as for the former. Antiparasitics and deodorizers are most effective palliative applications and best employed after bathing with hot water. *Salicylic acid*, one part to thirty of bay rum or cologne; *corrosive sublimate*, one part to four hundred of rose or cologne water; a one per cent. solution of the *permanganate of potash*; and one part of the *peroxide of hydrogen* to three of water, are among the best. Among drugs see indications for *Hydrastis*, *Nitric acid*, *Osmium*, *Pet.*, *Phos.*, *Rhododend.*, *Sepia*, *Sil.*, *Staph.*, *Sul.*, *Thuja* and *Zinc*.

URIDROSIS

(*Sudor urinosus*.)

DEFINITION.—A condition of the perspiration in which some of the constituents of the urine, chiefly urea, are present in excess.

Normally, a small amount of urea is secreted with the sweat. Under certain abnormal conditions of secretion it may become abundant enough, together with other urinary salts, to leave a deposit upon the skin after evaporation of the fluid part of the sweat; and, by decomposition, yield a more or less pronounced odor of urine. Such instances may occur in a person of apparent health; but most cases result from diseases of the kidney, causing uræmia; or from some profound states of the system, like the collapse in cholera and the sweating in articulo mortis, when all equilibrium between secretions may be suspended. Probably in the presence of kidney impairment, the elimination of urinary constituents in the sweat may be vicarious in nature. *Eryng. aquat.* or *Nit. acid* may be useful in curable cases.

CHROMIDROSIS*(Colored sweat.)*

DEFINITION.—A disturbance in the function of perspiration in which the sweat is colored.

The color has been attributed to the presence in the perspiratory exudate of the compounds of iron, indican, Prussian blue, cyanogen, phosphorus, hæmatin, chromogen and bacteria. Cases of true chromidrosis are extremely rare. Pollitzer states that in some of the great dermatological clinics of Vienna, Paris, etc., no cases have ever been seen. Three forms of colored sweating have been described:—(1) From elimination of some substance taken into the system; (2) from neurotic disturbance of secretion; (3) from bacteria or false chromidrosis. Colored sweat due to *elimination* may be blue, green or red. In a case of blue chromidrosis, protosulphate of iron was found in the sweat. The patient had previously taken much iron. Green sweat is not uncommon in workers in copper, and may be profuse enough to stain the clothing. Reddish sweat may come from the ingestion of iodine compounds. Excessive perspiration in the debilitated favors this elimination to the surface in some cases, doubtless where the substances have been given for medicinal purposes. Sudden changes in the color of the hair have been noted in cases of profuse sweating.

In the *neurotic* form the color of the staining is some shade of brown, black or blue. It is usually symmetrically distributed, most often about the orbital region, especially the lower lid; other parts affected in order of frequency are the cheeks, forehead, side of the nose, more rarely the whole face, chest, abdomen, back of the hands, axillæ, groins and popliteal space. It may appear rapidly or slowly, and change in color in like manner, while under immediate observation, or from one day to another. The secretion may form a granular deposit on the skin, which, in some cases, contains fat. This fact led Crocker to believe there were two sources of chromidrosis—the *sudoriparous* and the *sebaceous*. Although the deposit contains amorphous granules, supposed to be indigo, chemical and other tests give only negative results. This disorder may disappear in a short time, or persist for years.

The form due to growths of bacteria occurs in moist regions, as the axillæ and genital, and is associated with a disease of the hair known as lepothrix. The red color is due to colonies of micro-organisms (*bacterium prodigiosum*), unconnected with the function of the sweat glands, and, therefore, a false chromidrosis.

ETIOLOGY AND PATHOLOGY.—A very large per cent. of all cases of chromidrosis occurs in young unmarried women, mostly subject to some type of hysteria, and frequently sufferers from chronic constipation or uterine disturbance. There are good grounds for the belief that the disease is, at least primarily, a hysterical neurosis of the glands. The contributing rela-

tion of constipation has been shown by relapses following a recurrence of the previously relieved constipation. The theory that indican is derived from the indol of the feces, and, on reaching the surface, is oxidized or changed by some ferment into indigo, is not proven. The deposit upon the skin is removed, with difficulty, with water; but is easily removed with either chloroform or glycerine; but, thus far, tests have not revealed its nature. The nature of the eliminative and the bacterial forms of chromidrosis have been already mentioned.

DIAGNOSIS.—Barring imposture, there is no other condition which can easily be mistaken for chromidrosis. The hysterical element and the possibilities of accident and deceit should always be borne in mind.

PROGNOSIS AND TREATMENT.—Recovery is nearly certain; but the duration and freedom from relapses depend on the success of causal treatment. Such *treatment*, by internal medication, may be required to cure constipation, neurotic disorders, etc., local measures may be required for uterine disease, and antiparasitics, such as boric acid and resorcin lotions, chloroform or ether, for the parasitic form of the disorder. When the cause is an accident of occupation or arises from drugs taken internally, avoidance of the cause is the only remedy. *Conium*, *Merc. vivus*, *Dulcamara* and *Nux vomica* should be studied.

HÆMATIDROSIS

(*Epidrosis cruenta*, *Bloody sweat*.)

This rare condition occurs as the result of extravasation of blood into the coils and ducts of the sweat glands, where it mixes with the sweat as it escapes from the uninjured surface of the skin. It may follow as a rare effect of violent emotions, or be due to vicarious menstruation; and it has appeared in the new-born with fatal result. It is generally limited, the parts affected being the face, the hands, the feet, the umbilicus, etc. The amount of blood lost is small and the condition may be regarded as a symptom of hemophilia. See *Crotalus* as a possible remedy.

PHOSPHORESCENT SWEAT

This rare phenomenon has been attributed to a fish diet and presence of photophoric bacilli, but has also been found in the later stages of phthisis, and in miliaria. Beyernick found several species of photo-bacteria which were chiefly derived from fish. Phosphorescent breath, pus, semen and urine, when phosphorus is being taken internally, are not very rare, and *phosphorus* should be studied as a remedy for the first named cases.

HYDROCYSTOMA

DEFINITION.—A disorder of the perspiratory function in which the sweat accumulates in cysts, probably due to excessive perspiration, while the affected skin is exposed to artificial warmth and moisture. This is an affection almost exclusively limited to middle-aged women who expose their face, in washing over tubs, to warm moist air, and perspire freely. The disease is always worse in summer and may entirely disappear in winter. The lesions are nearly always confined to the face, and occur generally in discrete, round or ovoid, clear, shiny, tense vesicles, from a pin-head to pea size. They appear to be deep seated, but project above the surface, and resemble sago grains at their maturity. As they dry up they become whitish, like milium lesions. The larger ones may have a bluish tint, or a slight hyperæmia at the periphery. They dry up, without rupture, after lasting one to three weeks, leaving the skin normal or lightly stained. The number of vesicles may be small, or one to two hundred. At the most, the subjective sensations are mild smarting or tension. The disease is of slight importance, except as a facial blemish. Comedones or acne are frequently present.

DIAGNOSIS.—This affection might be mistaken for adenoma of the sweat glands, sudamina, pompholyx and possibly eczema. Adenoma has an altogether different history, and the contents are solid. Sudamina is an accumulation of drops of sweat under the corneous layer only, and the small lesions rarely appear upon the face. Pompholyx occurs upon the palms of the hands or soles of the feet, and the vesico-bullæ do not remain clear as in hydrocystoma. Absence of all signs of inflammation would serve to distinguish it from vesicular eczema.

PROGNOSIS.—The disease is only a disfigurement, unaffecting the general health in any way. While it is almost certain to disappear spontaneously in winter, it is also apt to recur in summer from exposure to the same causes; and may become chronic from continued recurrence.

TREATMENT.—If too unsightly the lesions can be punctured with a needle, and, after the escape of their contents, the parts may be bathed with hot water a minute or two. Without any local measures, resolution can be hastened by an indicated remedy, which should be prescribed on the totality of the symptoms. The editor has seen two cases respond to such treatment. See *Ant. crud.*

MILIARIA CRYSTALLINA

(*Sudamina.*)

DEFINITION.—An obstructive disorder of the perspiratory ducts, in which the sweat is retained at the orifice in the form of small clear vesicles, and usually appearing during the course of some febrile disease.

SYMPTOMS.—The vesicles are minute in size, usually discrete, and gen-

erally appear upon the trunk, abdomen or chest, but they may come elsewhere on the skin. They form rapidly in a few hours, rupture spontaneously in a few days, and soon leave the skin clear unless fresh crops appear. The color of the skin is unchanged about the lesions, which may be few or many. They produce no subjective symptoms. This condition may follow the so called "critical" sweating of such diseases as typhoid fever, acute rheumatism and puerperal fever.

ETIOLOGY AND PATHOLOGY.—The presence of some acute systemic disturbance which diminishes both the nutrition of the skin and the perspiration is probably the first cause of miliaria. The retained or changed epithelium blocks up the orifice of the sweat ducts while the skin is dry, and a sudden resumption of sweat formation, unable to escape by the natural outlet, forms a sweat vesicle underneath the horny cells of the epidermis.

DIAGNOSIS.—The dewdrop-like vesicle, absence of local signs of inflammation, and occurring in the course of a "fever" cannot be mistaken for any other eruption.

TREATMENT.—The nature of this affection suggests such remedies as *Am. mur.*, *Bryonia*, *Hydrocot.*, *Merc. viv.* and *Urtica urens*, but usually it is not treated specifically. The parts may be sponged with dilute alcohol and then a simple dusting powder applied.

MILIARIA RUBRA

(*M. papulosa*; *M. vesiculosa*; *Lichen tropicus*; *Prickly heat*; *Sweat eczema*.)

DEFINITION.—An acute obstructive disorder of the perspiratory ducts, either inflammatory or causing inflammation, with redness and itching.

SYMPTOMS.—It is a disease of hot weather, and attacks most often the stout, or persons too warmly clad and hence inclined to perspire freely. The eruption appears in the form of pin-point to pin-head sized, acuminate, bright red papules, often capped with tiny vesicles or pustules. These come suddenly and in great numbers, situated commonly on the chest, neck, back, abdomen, or arms, but may appear on the face or other regions. They are discrete but closely crowded together, and often there is more or less erythema. Sometimes the papules predominate, *miliaria papulosa*. The variety of miliaria rubra called *lichen tropicus* or *prickly heat* is apt to be more papular in character. Nearly always, however, the vesicles are in much greater proportion, hence the name *miliaria vesiculosa*; after a few days the vesicles become opaque, and it is then *miliaria alba*. The sweat rash ("red gum" or *strophulus*) of infants is a form of miliaria rubra, due to over dressing, and in the very young often occurs on the side or part which rests against the mother during nursing, etc. The vesicles of miliaria do not rupture spontaneously, hence there is no weeping of the surface; if torn by scratching, a crust forms and is shed in a few days. The duration is about a week for a single outbreak, but during a hot spell fresh crops are

likely to prolong the attack. Pricking and itching sensations are often severe, and anything which stimulates the circulation or promotes sweating aggravates the pruritus. The general health is unaffected and a change of air or to cooler weather usually mitigates the attack at once.

A few cases of chronic miliaria have been reported by English observers, but it must be extremely rare. So-called miliary fever, which is also rare and comes in epidemics, has not appeared in the last few years.

ETIOLOGY AND PATHOLOGY.—The apparent causes have been stated in defining the disease; *i.e.*, warm weather, obesity, excess of clothing and free perspiration. Occasionally rapid alternations of temperature, either from cold to hot, or from hot to cold, is an exciting factor. Irritating quality of the clothing, such as coarse flannels; or clothing made irritating by uncleanness, may contribute to cause an outbreak. Acrid or other irritating properties of the sweat, as well as injudicious eating and drinking, have been noted as causal factors.

A certain amount of local vasomotor disturbance enters into the *pathology* of miliaria; in most cases this is probably secondary in occurrence, and in the nature of a hyperæmia of the corium with some serous transudation into the epidermis, aiding to prolong the disorder. But it is entirely possible that the congestion may be primary, and that the watery effusion from the blood, together with the perspiration, interferes with the cornification of the cells of the epidermis, and which may by soakage swell up and occlude the sweat ducts during a temporary subsidence of the active perspiration. The renewed flow of sweat meets the obstruction in the duct and accumulates by dilating the canal in the epidermis, ending in rupture and the formation of the miliary lesions characteristic of this disorder. It is likely, therefore, in a pathological sense that there are two kinds of miliaria rubra. One in which the hyperæmia is secondary to the sweat obstruction—a result of the local disturbance; the other in which the hyperæmia is primary, and causes or aids in causing the sweat obstruction. In either way the process is to be looked upon more as a sweat erythema than as a sweat eczema.

DIAGNOSIS.—The association of miliaria rubra with sweating during the prevalence of warm weather and the absence of constitutional symptoms will generally suffice to distinguish it from the eruption of other diseases. In vesicular eczema the vesicles rupture and there is oozing and crusting with a tendency to persist; whereas, miliary vesicles do not rupture, and the individual eruption is transitory. It may be known from the eruptive fevers by the absence of constitutional and other symptoms typical of those diseases. The occasional association of miliaria with the cutaneous manifestations of infectious diseases is to be borne in mind in suspicious cases.

TREATMENT.—Simple dusting powders or cooling lotions of one part of vinegar or alcohol to four parts of water will usually suffice to relieve miliaria after the exciting cause is removed. Attention to one's habits, clothing, etc., will prevent a recurrence. See indications for *Am. mur.*, *Ant. crud.*, *Bell.*, *Bry.*, *Jaborandi* and *Hydrocot.*

HYDRADENITIS SUPPURATIVA

DEFINITION.—An inflammation of the sweat glands attended with supuration and resulting in the formation of a scar.

This disease is sometimes described as a form of boil, but as Pollitzer has pointed out, there is no real ground for such association. The lesion begins as a small, deeply seated nodule, covered by the unchanged and freely movable skin. In the course of two weeks it slowly enlarges to the size of a pea and becomes slightly painful, and the skin over it red. If incised at this time a drop of pus escapes. Untouched for a few days longer, the centre of the lesion becomes yellow, and soon discharges a few drops of pus from one or more minute openings. A little blood may be mixed with the pus, and in drying forms a brownish adherent crust which drops off a few days later, leaving a reddish, pigmented spot at the site of the tumor and ultimately a small cicatrix. The lesions may be few or many. Often it occurs singly in the axillæ, on arms, nipple, and genital regions. The disease may develop on any part of the skin, but, when multiple, it more commonly involves the face, neck, extremities, or trunk.

ETIOLOGY AND PATHOLOGY.—Little is known as to the causes of the disease. It is most common in young adults and those who perspire excessively. Parasites, cold, uncleanness, pruritus, scrofula, cachexia, neurasthenia and hyperidrosis have been named as causes. Whether the pathological process is due to infection or to the elimination of some irritating or toxic agent by the gland is not known. The acute parenchymatous inflammation starts in the sweat gland and involves the immediately surrounding tissue, going on to the suppurative stage with a final destruction of the affected glands.

DIAGNOSIS.—*Boils* differ from hydradenitis in that they are attended with more severe inflammation, tensive pain, followed by prominent elevation of the skin, and end with the discharge of a central core.

In *acne*, there is an absence of nodules; the lesions are papules and pustules, involve the hair follicles, and are often associated with comedones. *Cachectic acne* is a symptom of struma, and the lesions consist of papules (lichen scrofulosum) and distinct pustules with a reddish areola. The *nodular syphilide*, which, according to Bazin, develops in the sweat glands, differs from hydradenitis suppurativa by the rapid softening of the central part of the nodule and the formation of a characteristic syphilitic ulcer. *Ringworm* of the *beard* with nodular swellings may be distinguished by the lesions involving the hairs, and by the microscope showing the presence of the fungus of that disease.

PROGNOSIS.—Uncomplicated suppurative hydradenitis is followed by ultimate recovery. Engrafted on some previous disease which lowers the vitality, it may prove a serious complication.

TREATMENT.—When the lesions are located on the face or neck, one object of treatment is to limit the resulting scar as much as possible. To this end each nodule should be promptly incised, cleansed and occasionally

rubbed with three per cent. creolin in glycerine. Dietetic and general hygienic measures vie with the pathogenetic to effect a cure. See indications for *Ant. crud.*, *Ant. tart.*, *Ars. brom.*, *Cal. sul.*, *Juglans reg.* and *Nat. mur.*

B. DISEASES OF THE SEBACEOUS GLANDS

Under this head will be found only affections which involve the oil glands of the skin, in part functional and in part inflammatory or organic. To what extent the oil glands and other tissues are also involved it is not always possible to say. The primary or chief disturbance, however, is indicated by the heading.

ASTEATOSIS

DEFINITION.—A condition of the skin in which there is partial or absolute deficiency of the sebaceous secretion in one or more regions of the body.

It is usually symptomatic of other affections, such as psoriasis, ichthyosis, lepra, etc. Idiopathic cases are rare. Palliative *treatment* consists of frequent baths and inunctions with oil. As in anidrosis vibratory massage and the high frequency electric currents have proven valuable. Among internal remedies see indications for *Alumina. Coco* and *Lycopodium*.

SEBORRHOEA

(*Seborrhagia*; *Steatorrhœa*; *Stearrhœa*; *Sebaceous flux*; *Dandruff*, etc.)

DEFINITION.—A functional disorder of the sebaceous glands characterized by an abnormal secretion, in the form of oil, crusts or scales, as it accumulates on the surface of the skin.

The disease occurs in two forms according to the condition of the product; when this is dry it is termed *seborrhœa sicca*, when oily so as to give a greasy appearance to the surface affected it is called *seborrhœa oleosa*. Occasionally the two forms may exist in the same person at one time. Either form may be slight and of short duration, or wider spread and persistent, lasting for years. The disease may occur on any part of the body where there are oil glands. The most common sites are the face, scalp, genital region, back between the shoulders and in front of the chest. It may occur at any age, and the patient may exhibit any degree of health from anæmia to plethora. Usually the skin itself is anæmic, but may be congested or inflamed, with consequent redness and some degree of pruritus.

Seborrhœa Sicca.—This is the most common form, and occurs most frequently upon the scalp, where it is designated as "dandruff." Unna states, that when seborrhœa is found elsewhere on the surface, some evidence past or present will be almost invariably found of its existence on the scalp. It is best studied according to location.

Seborrhœa capitis occurring in infancy is popularly known as *crusta lactea*, or "milk crust." This may originate from the dried vernix caseosa remaining on the vertex of the new born, or it may begin on scalps which have been well or too much cleansed. In the adult the disease is usually symmetrical, and shows itself by the formation of yellowish white greasy plates of dried sebaceous matter, somewhat adherent to the surface and penetrated by some of the hairs; or in smaller particles which are freely shed from the surface and lodge upon the clothing over the shoulders of the person whose scalp is affected. The disease may be circumscribed, or occur in more or less diffused patches, on which occasionally the accumulations may paste the hairs to the part involved; often there is a fringe about the brow extending on to the scalp from the borders of the hair, on which the scales are apt to be persistent. Sometimes the whole scalp is uniformly involved, but in nearly all cases which last for any length the vertex and crown of the head is affected. In the latter regions the effect of the disease in producing premature baldness is most often seen. The hairs deprived of their natural lubricant become dry and fall from their follicles, and, if the causal seborrhœa be not arrested in time, atrophy of the hair follicles follows, and the loss of hair becomes permanent. Fortunately the alopecia is generally symmetrical, occasionally it is asymmetrical and the loss of the piliary adornment more unsightly. In infancy the loss of hair is always temporary. The surface of the scalp affected is usually anæmic and pale grey in color; occasionally dark red, circular, moist patches may be found at different points. These are often due to excoriations with the finger nails, made in the attempt to relieve the slight itching by scratching. More rarely there is a diffused hyperæmia with more or less epithelial desquamation added to the sebaceous accumulations, *pityriasis simplex*. Still another type of cases occurs associated with eczematous inflammation, and known as *seborrhœal eczema* or *seborrhœic dermatitis*, which will be considered under a separate head. The bearded portion of the face, the eyebrows and the hairy portion of the pubic region may be involved in a similar way as the scalp.

Seborrhœa faciei most often occurs at the period of puberty in both sexes. The sebaceous matter is usually adherent to the surface in the form of dirty yellow to yellowish black, rather thick plates, sometimes extensive enough to present a mask-like appearance. The accumulations are frequently most marked upon the nose, and in a less degree upon the cheeks, forehead, eyelids, and chin. If the secretions are removed they rapidly reform as a rule. The recently cleansed skin affected by the disease is commonly found pale or slightly reddened, and shows the patulous openings of the ducts of the sebaceous glands into which stalactite-like formations on the under part of the crusts have fitted.

Seborrhœa corporis occurs in circumscribed, round, or irregularly defined patches, singly or in groups; owing to some degree of friction from the clothing, the disease is not so pronounced as in other forms, and is

chiefly limited to the sternal, clavicular, scapular and umbilical regions. The primary lesions may have a papular appearance, *seborrhœa papulosa*, and form patches by peripheral extension and coalescence, followed by clearing in the centre; thus forming imperfect circinate rings and resembling ringworm lesions. Seborrhœic papules are not uncommon in congestive forms of seborrhœa of the back of the neck, from extension downward from the scalp. In men the disorder is most often seen upon or near the sternum, where it appears in slightly reddened, roundish patches, partly covered with dry, greasy, yellowish scales; about the shoulders and back friction from the clothing may keep the patches quite free of scales. In the umbilical region the secretion is apt to decompose and give rise to a fetid odor; sometimes producing an eczematous inflammation with a sero-purulent discharge from the umbilicus.

Seborrhœa may become generalized by extension over the surface; such cases are not common. A few cases of *seborrhœa generalis* have been reported under Pityriasis Tabescentium, Cutis Testacea, Ichthyosis Sebacea. Whether occurring in infants or adults, there is always secondary marasmus. As observed in infancy, the skin is covered with a greasy layer, and underneath appears a glassy brown or reddish-brown color. If the seborrhœic covering is removed it rapidly reforms. In the stiffened skin painful cracks form, interfere with nursing or feeding, and, consequently, with nutrition. When the disease occurs in adults there are usually found dirty, blackish crusts which separate largely in the process of desquamation on lines corresponding to the natural folds of the skin.

Seborrhœa genitalium may be of the dry or oily form. About the external genitals and perineum it is commonly of the oily variety at first. Later the secondary irritation is likely to change the clinical aspect to an eczematoid form. In women semi-solid accumulations may occur about the clitoris, vestibulum and labia. In men similar accumulations may occur behind the corona glandis, or further extended if a redundant or tight prepuce exists. Sometimes a ring of hardened and retained smegma gives rise to reflex disturbances of various kinds, especially in the young. Females, while less liable to reflex disorders, are more subject, from the larger and more exposed surface and consequently increased liability to decomposition of the secretion to superficial irritations or even ulcerations. These might be mistaken for chancroid lesions, or in cases of suspicion of criminal attempts in young girls might become of medico-legal importance.

Seborrhœa Oleosa.—This form is characterized by an excessive secretion of an oily fluid which may occur upon any part of the surface, but is most common on the scalp and on the middle third of the face. In the latter situation it is more frequently seen than dry seborrhœa, especially on and about the nose, naso-labial fold and corners of the mouth. In elderly people the disorder in this situation is said to be associated with the development of epithelioma. On the scalp the oily secretion is seen to cover both the skin and the hairs, and, when baldness exists, gives the surface a pol-



ECZEMA DERMATITIS

EXFOLIATING VARIETY

Good general health. The symmetrical erythematous, but the crusts were not of the margin were fatty in character, on the eyebrows and scalp. Duration, variable itching, burning, aggravated

ished appearance. This secretion may solidify in masses, as described in dry seborrhœa, but the oily condition of the surface usually remains. In pronounced form, free drops of oil can be frequently wiped from the surface, and the ducts may be seen to be patulous or stopped with comedones, or the dust floating in the air may become attached to the oily matter and give the surface a dark or dirty appearance. If the affected surface be at the same time reddened and symmetrically distributed on the face, it might be mistaken for *seborrhœa congestiva*, a designation given by Hebra to an early stage of lupus erythematosus, in which the ducts of the oil glands are plugged with adherent scales. The tenacious character of the latter serves to determine the existence of that disease. The skin in seborrhœa is usually cool to the touch, but may be either reddened or pale. In the negro race a free oily secretion is more physiological, and may give to the exposed parts of the skin a pretty constant shiny look, without further evidence of the disorder appearing.

SEBORRHŒIC DERMATITIS

A condition in which seborrhœa and an eczematous type of inflammation involve the same surface of the skin, has been described under different heads by several authors. Unna first described the disease as *eczema seborrhœicum*, taking the ground also that seborrhœa was often, or in part, due to an oily secretion from the oil glands. This claim has not been fully confirmed by later investigations by other observers. The disorder has been named *Sudolorrhœa* by Piffard, apparently for the same reason that Brocq named it "oily hyperidrosis." More recently the disease has been given the qualifying term of dermatitis, and, inasmuch as the inflammatory part is secondary to the seborrhœa, this seems the more appropriate name. The disorder nearly always begins as a seborrhœa of the scalp, which may have existed for some time; or, rarely, its starting point may be the axilla, genito-crural region, front of chest, and still more rarely on other parts of the trunk or extremities. Exceptionally, the distribution may become universal. Seborrhœal dermatitis spreads slowly as a rule, and by peripheral extension, but may remain stationary for a long time; suddenly become active and spread in a uniform way, or more often appear at some new and distant point and pursue an irregular course. The lesions may be few or many; discrete, near together, or coalesce and form various shaped patches. The *simplest* form presents a more or less diffused scaliness, the color of the affected skin tinged with yellow or slightly reddened. The scales may be abundant enough to form adherent masses, varying in color and consistency with the character of the sebaceous secretion, from a dry greyish white to a rather soft yellowish brown. This form is little more than a seborrhœa, with mild symptoms of irritation, such as itching, burning, etc.

In the *second degree*, superficial macules with sharply defined borders are seen. They vary in shape, though often round or oval; in color, from

a yellowish-pink to a pronounced red. There may be found also near by reddish papules scattered about or aggregated together. In women past the middle period of life it is not uncommon to see a diffused redness of the whole or part of the scalp, extending down upon the neck or about the ears, with papular elevations here and there near the periphery. In such cases scales usually form abundantly and uniformly over the part of the scalp involved.

Macular and papular lesions may, by peripheral extension and concurrent involution centrally, form circinate, concentric, or in union with similarly involuting lesions, band-like forms of efflorescence. The formation of scales may be scanty or abundant, and exhibit the same character as in the simple variety of the disease. When the scales are dry and whitish and sparsely distributed over the lesions, there may be a resemblance to the lesions of psoriasis, from which the scales have been partly removed, *seborrhæa psoriasisiformis*. So, also, may the thickly crusted lesions of similar shape to those of psoriasis closely simulate the latter disease.

In other cases the surface of the lesions may be moist from admixture of sebaceous secretion, sweat and serous exudation. Sometimes there is a distinctly catarrhal discharge, which may dry into crusts; thus presenting some of the features of an eczema, *seborrhæa eczemaformis*.

In a *third degree* the inflammatory type of the disease is more pronounced, the skin is more deeply engorged and reddened, the greasy catarrhal discharge more abundant, and the itching sufficiently marked to induce scratching.

The squamous form of seborrhœic dermatitis is most common, but all degrees of the disease may commingle at the same time, or appear in slow or rapid succession upon the same person.

On the *scalp* the disease may involve the whole surface (most often in women), or be chiefly limited to the vertex or occiput. There is commonly a greyish-white desquamation from a pale red and dry skin, *pityriasis capitis*. Sometimes the scales form in masses about the hairs, and when loosened appear as if strung upon individual hairs. The hair itself is lustreless and after a time becomes thinned out, *alopecia pityrodes*. Moist lesions may occur on the scalp; they are usually round or oval, sharply defined, yellowish red, and may become crusted over. At the margins of the forehead and occiput the lesion may appear as well-defined curved bands or lines covered with scales or fatty crusts. Over the brow of these crusty circlets, "corona seborrhoica," are frequently seen. When the process extends from the scalp downwards it is more apt to spread down the forehead, temples and back of the neck, where there is produced a distinct redness of the affected surface, partially covered with fatty scales and occasionally moist lesions appear. The disease not infrequently appears upon the face without immediate extension from the scalp. The middle third of the face is most often affected, sometimes the butterfly distribution is seen over the nose and outward upon the cheeks similar to lupus erythematosus. The area of reddened skin is quite

sharply defined; often heavily crusted, especially on and about the nose and eyebrows. Other parts may be reddened and greasy, and moist spots may be seen here and there; upon the cheeks yellow or reddish macules with less abundant scales are the most common lesions. The back of the ears may be affected with the moist or dry forms of the disease, and fissures may complicate the process. If the auditory canal is affected the meatus may become filled with the fatty accumulations and the hearing impaired. One case of total one-sided deafness from this cause has come under the author's observation.

The colored borders of the *lips* are rarely attacked, and in two cases under observation were secondary to the disease elsewhere. The lips affected are uncomfortably dry and stiff, from the presence of darkish crusts, which tend to separate and form superficial cracks into the moist denuded surface exposed. When the crusts are removed or shed, the lips very soon become dry and shiny, and the process of crusting is repeated.

When involving the *eyelids* and the outer and inner angles of the eyes, it has been noted by the editor that the secretions of the eyes, especially when there is marginal trouble to complicate, serve to prolong the condition markedly; hence it is that seborrhœic dermatitis in this region is often of the pigmented, scaly, chronic type.

In the *axillæ* and *genito-crural* regions the disease usually occurs in red macular spots of various size, which are confined to those regions, show little crusting, owing to the presence of moisture; but if the disease spreads away from those regions, as it is apt to do by peripheral curve-like growth, scales and crusts form. Thus from the *axillæ* the lesions may extend forward on to the border of the chest, or backward on to the scapular region; or from the inguinal region down upon the thighs and buttocks, over the external genitals and back upon the perineum. Where two surfaces of affected skin come in contact it may simulate an intertrigo.

On the *trunk* the disease begins, as a rule, with small papules tipped with a smaller scale, or as macules more or less covered with scales; on the chest and back the papular form, *seborrhœa papulosa*, is most common. If isolated, they spread by peripheral growth, or if near together papules may coalesce. In either case, a central evolution, sometimes including a portion of the circumference of a lesion, together with the mode of growth and merge with other lesions, may result in figurate shapes of various degrees. The borders are sharply defined, scaly and often show raw exuding points. Thin, fatty scales may nearly always be found on the old portion of the patches. On other parts of the body and on the extremities the disease is of least frequent occurrence, the lesions are more macular in type, round or oval in shape, and less likely to merge together to form irregular patches. They may be bright red or have a yellowish hue, with slight scaliness or thickly covered with fatty crusts, about which a reddish border may be seen. Solid papular lesions are sometimes present with the same variations in scaliness or crusting as the macular form. In both forms the crust may

cover a moist or a dry base; they may remain roundish or change to coin-like, circinate or irregular shapes.

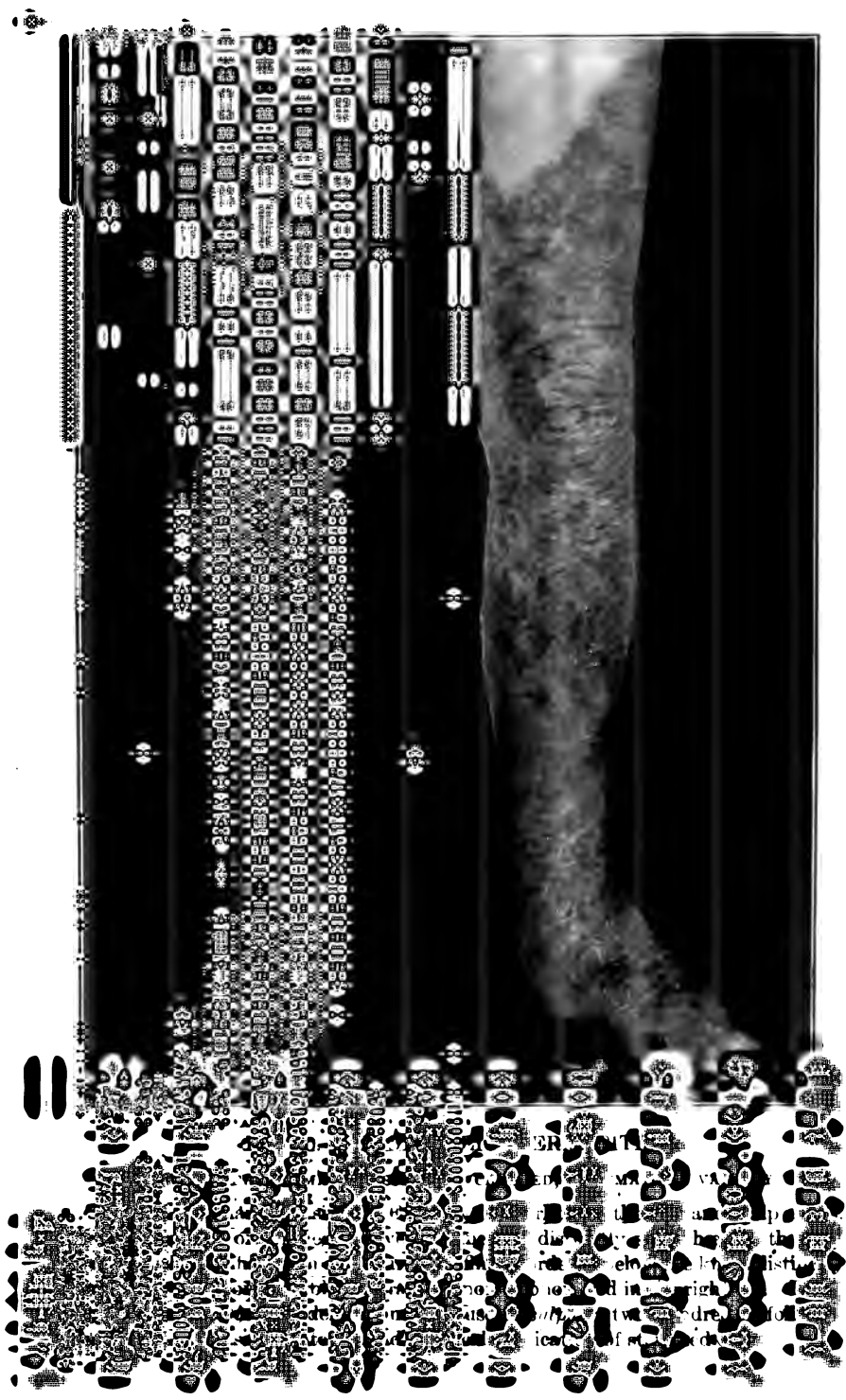
Between the *fingers* the disease may exhibit features similar to those seen in the axillæ or groin. Lastly, it is well to note that seborrhœic dermatitis may co-exist with other cutaneous diseases, such as the syphilides, rosacea, sycosis and acne.

ETIOLOGY AND PATHOLOGY.—Certain constitutional conditions of the system are said to predispose to seborrhœa, such as syphilis, gout, chlorosis, struma, chronic alcoholism, debility following fevers and malnutrition. Disorders of menstruation, of digestion, obstinate constipation, sedentary habits, excessive use of tobacco, and, in men, the wearing of stiff, heavy hats are causal factors. The fact that the disease occurs at all ages, and, in most cases, in persons of good or robust health, indicates that there must be a more direct cause than those enumerated. The not uncommon neglect of the scalp no doubt is often the first external beginning of a seborrhœic dermatitis. Upon a surface where sebum and epithelial matters have accumulated to some extent, it is not unreasonable to suppose that micro-organisms may often find a suitable medium for growth. The clinical behavior of the disease favors this solution, as does the investigation of Taenzer, who isolated some eighty varieties of bacteria from the lesions of seborrhœal eczema. That the several forms of the disease occur in persons affected with some disturbance of health proves, as Morris has said, that, like other morbid processes, it flourishes best in a congenial soil.

It has been thoroughly proven by Unna, Brooke and others that the seborrhœic process has a marked influence on the development and course of such diseases as acne, rosacea, eczema, psoriasis and syphilis. Despite the investigations of Sabouraud, who claims that seborrhœa is due to a micro-bacillus, there has been no satisfactory demonstration of the parasitic nature of seborrhœa or seborrhœic dermatitis.

Pathologically, seborrhœa is an epidermic disease showing an over-production of normal sebum and a dilatation of the sebaceous gland-duct openings. Normally, the sebum is produced by a fatty degeneration of the epithelia lining the pockets of the sebaceous glands. In the simple forms of seborrhœa there are changes in the secretion, as to quantity, fluidity, inspissation and sometimes a consequent tendency to decompose and give rise to superficial inflammation. Such results can be produced artificially by external changes of temperature, friction, etc. In the severer forms there is added some degree of inflammation of the glandular or peri-glandular tissues. Therefore, the latter are to be viewed as forms of dermatitis, due to the irritation of external agents (micro-organisms, etc.), in the absence of a normal resistance of the epidermis, resulting from some local or general condition.

DIAGNOSIS.—The distinctive features of seborrhœa are its starting first upon the scalp in the great majority of cases; its tendency to spread from thence downward; the greasy nature of the secretions; and, when there is



congestion or inflammation present, the history of a primary seborrhœa. The characteristic greasiness of the skin and hair in seborrhœa oleosa makes easy the diagnosis of that form. The dry and inflammatory form might be mistaken for eczema, psoriasis, ringworm, impetigo contagiosa, syphilis and lupus erythematosus.

Eczema may co-exist with seborrhœa, especially in infantile eczema of the scalp. In eczema the early presence of ill-defined redness, infiltration, or a discharge from the skin, darker crusts, and marked sensations of itching, will, as a rule, clearly distinguish that disease. In squamous forms of eczema the scales are not greasy, or as freely shed from the surface as in seborrhœa sicca or seborrhœic dermatitis.

Psoriasis commonly begins upon the extensor surfaces, and if it extends upward to the head is apt to be most marked on the forehead at the border of the hair. Rarely does the disease develop upon the scalp without some characteristic lesion being present on the extremities or body. The scales are pearly white and dry, not fatty as in seborrhœa. Psoriasis usually occurs in circumscribed patches, roundish in outline, and underneath the scales the skin is red. Seborrhœa is often diffused, and the surface of the skin underneath the scales is frequently pale in color. The location, course of the disease, character and color of the scales will serve to distinguish even closely similar lesions of psoriasis from seborrhœic dermatitis. The two diseases often co-exist; the editor having seen twelve mixed cases within the last six months.

Tinea circinata and *tinea tonsurans* may be determined by the microscopical discovery of the parasite. Ringworm of the scalp generally occurs in circular, less diffused patches than in seborrhœa, and generally some broken stumps of hairs can be found in the affected area. In both forms of ringworm there is an absence of greasy scales common to seborrhœic disease, and present a probable history of contagion.

Impetigo contagiosa would only be mistaken for seborrhœic crusts after the lesions had become dry. The former is an acute affection, occurring chiefly in children, in the form of discrete vesico-pustules which sometimes coalesce, soon rupture and dry into rather bulky honeycomb-like scales. It lasts rarely more than two to three weeks, unless kept active by auto-inoculation from neglect, etc.

The papulo-squamous or the crusting stage of a *pustular syphilide* might at first sight resemble the accumulated scales of seborrhœic spots of the scalp and face. The history of the case, giving other evidences of syphilitic infection, such as the primary sore, mucous patches, other forms of syphilides, etc., and the puriform secretion found on removal of the crusts in the pustular form will establish the nature of the lesions. Unna claims that the two diseases often exist together, and that the seborrhœic process may dominate the objective appearance.

Lupus erythematosus in atypical form may rarely resemble an also atypical seborrhœic dermatitis. Even then the differences are more numerous. The patches of the former are better defined than in the latter; the color

is a deeper (violet) red than that seen in most forms of seborrhœic inflammation; the scales are very adherent and dry, as compared with the easily detached and greasy sebaceous accumulations of the latter. Lupus erythematosus is due to a new growth and is often followed by scarring. Seborrhœic dermatitis is a functional and inflammatory disorder, and on recovery the texture of the skin is unchanged.

PROGNOSIS.—In all except the rare generalized form of seborrhœa the prognosis is reasonably good. Some are easily cured, others are equally obstinate to treatment. In seborrhœic dermatitis of the scalp, except in infants, it should be borne in mind that an attendant baldness may be permanent, though sometimes the piliary growth can be partially renewed.

TREATMENT.—The accumulations of sebum upon the surface of the skin may act as a mechanical irritant; or, if decomposed, as a chemical irritant; therefore, such deposits should be removed by mechanical methods. Gentle frictions with olive oil, sweet almond oil or fresh lard will loosen the scales, which may then be wiped away; or cleansing with any toilet soap and water will clear the surface, after which it should be quickly dried and very lightly anointed with some non-medicated oil or fat. Some cases of seborrhœic dermatitis undoubtedly become parasitic, and local causal treatment is indicated. In mild cases alcoholic solutions may be efficient. *Green soap* may be combined with alcohol in equal proportions, which, after filtration and scenting with some perfume, if desired, may be employed in place of ordinary soap. This should be sponged over the affected part, and then sufficient warm water used to make a free lather; finally washing off with clear water, drying, and anointing as before directed completes the measure. Brandy or whiskey with ordinary soap may sometimes be substituted for the green soap. Or, again, following the first method of cleansing, the following lotions may be employed: *Sulphur* one drachm, alcohol and rose water of each two ounces, glycerine half an ounce; or *sulphuric ether* and *biborate of soda*, each three drachms dissolved in ten ounces of distilled water. The latter lotion can be used without first cleansing the part, when the scales are not abundant; and it may be followed by the light application of a non-medicated oil, such as lanolin one part and sweet almond oil four parts. In persons with delicate or sensitive skins mildly alkaline aqueous solutions, such as *ammonia*, *carbonate of potassium*, *bicarbonate of soda* and *borax*, may be used for cleansing purposes, followed, after washing off and drying, by some mild anti-parasitic ointment in place of the non-medicated oils. The following combinations, perfumed if desired, will be found in a variety of cases useful: *calomel* in the strength of five to twenty grains to the ounce of fresh lard, or the *ammoniated mercury* in the same proportions; *sulphur* one-half to two drachms to the ounce; *salicylic acid*, *resorcin* or *beta naphthol*, ten to twenty grains to the ounce. In seborrhœal affections of the genitals, umbilicus and axilla, especially in stout individuals, ointments should be seldom used. Here lotions or dusting powders are better, when any medicated or anti-parasitic applications are needed after cleansing. Of the latter, finely powdered *boric acid*

one part to four of starch or talc; powdered *salicylic acid* one part to ten of starch; and the compound stearate of *zinc* are among the best. All powders should be finely pulverized. Choice of the foregoing local measures may be made for individual cases of seborrhœa and seborrhœic dermatitis occurring on the hairy or non-hairy parts.

The effect of these applications is almost purely mechanical or anti-parasitic. They act to remove a maintaining cause (the *causa occasionalis* of Hahnemann), and do not remedy an internal condition, but remove external obstacles to a cure.

Rarely is stimulating (pathogenetic) local treatment required beyond that incident to the medicated applications already named. When needed in obstinate cases, to aid in bringing about the functional tone of the skin, *resorcin* or the tincture of *pilocarpine*, *cantharis*, *capsicum*, *nux vomica* or *ergot* incorporated in cold cream or other soft ointment, in the proportion of ten to thirty drops to the ounce; or, still better in many cases, in lotion of five to twenty drops to one drachm of *boroglyceride* and seven drachms of rose water may be employed.

All local applications should be graduated in strength and quality to meet the local needs and the sensitiveness of the skin in each case.

Stimulation applied to the spine of the patient by the regular application of the large, flat vacuum electrode attached to the *high frequency* apparatus, or applied directly to the seborrhœic area from the *D'Arsonval apparatus* with or without the *Oudin resonator*, will often obviate the need of strong local ointments.

Physiological attention to the whole skin may be important. A daily cold bath invigorates the skin as well as the general system. *Rock salt* may be added to the water, in a proportion of a half ounce to an ounce to the gallon, to increase the effect of the bath. Other physiological treatment consists in the correction of habits which may have caused or aggravated the disease, and which were briefly named under etiology. Regulation of diet and exercise so as to promote healthful nutrition, and the relief of other disorders of the economy which may have had a causal relation to the seborrhœal disturbance are sometimes essential steps in a cure.

Internal *pathogenetic* treatment is always important, and when the constitutional indications are clear, often the only treatment required. This I have been able to demonstrate over and over in patients coming to the clinic, who could not or would not carry out systematic local measures. See indications for *Agar.*, *Am. mur.*, *Bry.*, *Cal. acet.*, *C. carb.*, *Chel.*, *Colch.*, *Hydr.*, *Kali brom.*, *K. mur.*, *K. Sulph.*, *Kresot.*, *Merc. viv.*, *Mez.*, *Nat. arsen.*, *N. mur.*, *Nit. ac.*, *Pet.*, *Phos.*, *Selen.*, *Sepia*, *Sul.* and *Vinca*.

COMEDO

(Black-head; *Acne punctata*.)

DEFINITION.—A disorder of the sebaceous function in which the inspissated secretion plugs the ducts of the sebaceous gland. Comedones are seen upon the surface as small blackish points or papules, which may be depressed, on a level with, or slightly elevated above the surface of the skin. They are readily pressed out of the ducts, and, from their resemblance to small maggots, have been vulgarly called “skin worms.” When examined they are found to be whitish masses of sebum, and the black extremity, which presented at the surface, due to dirt and cornified epidermic cells. The usual location of comedo is upon the forehead, nose, chin, cheeks, neck, back and penis. In number they may be few and scattered, or many and near together. They are unattended with any local subjective symptoms, and may remain for years without apparent effect on the surrounding tissues; they are, however, frequently associated with seborrhœa, and they may, by mechanical or other irritation, give rise to acne. They are most common, also, at the same period of life as the two latter diseases; that is, the puberal epoch of both sexes, but they may appear at any age. Thus they have been observed in children, on parts of the skin subject to heat and moisture; and in older persons subject to dyspepsia, on the “flush area” of the face. Here they are smaller than in the usual form and tend to become grouped together. Smaller comedones are also seen sometimes upon the trunk, but not grouped.

The double or multiple comedo, usually upon the back, consists of closely grouped black-heads having a common glandular cavity.

ETIOLOGY AND PATHOLOGY.—Comedo usually begins at an age when the oil glands and hair growth are active. The disorder in the majority of cases is probably due to a general or reflex cause. Often there seems to be a connection between constipation of the bowels and constipation of the sebaceous gland; but dyspepsia, scrofula, chlorosis, menstrual disturbances and cachectic conditions are at times plainly related, as proved by the good effects upon the skin of treatment of those disorders. The fact that the disorder may occur in seemingly vigorous young people indicates there may be a local cause. Those subjects who work constantly in dust or dirt and who do not use soap and water freely may develop comedones from the nature of their habits. However, the pathology is suggestive. The sebaceous glands chiefly affected by comedo are those which contain the lanugo hairs, whose growth is especially active at puberty. The follicles of these rudimentary hairs, according to Biesiadecki, often rest at an acute or even right angle to the duct of the gland, and as the hair grows its point meets the wall of the duct and occasionally turns downward upon itself; thus acting as a foreign body to produce irritation of the duct and increased proliferation of the epithelial elements, which go to form the outer covering of the comedo. Hair filaments are frequently found in the contents pressed out of the sebaceous duct. The small mite, known as the *acarua folliculorum*, found sometimes in the ex-

ternal part of the comedo, and which excites a follicular inflammation in dogs, has no etiological weight in the human species, since it is also found in healthy follicles. Unna's opinion that the dark point which marks the comedone is due to pigment derived from the secretions, changed, perhaps, by exposure to the air and light, seems the true explanation, although fine particles of dirt are doubtless the causes in specific instances.

DIAGNOSIS.—Comedones are easily distinguished from all other lesions. Grains of gun-powder imbedded in the skin may closely resemble them. The history of a gun-powder accident and the impossibility of removal by pressure alone will serve to differentiate the latter. Occasionally cases of unusual character or distribution are seen. In the absence of diagnostic lesions of other cutaneous disease, the expression from the sebaceous ducts of moulds containing more or less greasy matter will enable one to recognize the nature of the disease. The association sometimes of comedo in few or large numbers with seborrhœa and acne needs to be kept in mind. The frequent application of pigments to the face, or medicated preparations of sulphur, mercury, tar, etc., may leave minute deposits at the orifices of the gland ducts and give an objective likeness to comedones. A slight examination will reveal the lack of any real comedo.

PROGNOSIS.—The disease is always curable by appropriate measures of treatment, and tends to spontaneous resolution after a variable period of delay. With great rarity the site of a comedo continuing through middle life may become the starting point of a warty epithelioma.

TREATMENT.—Mechanical measures may be employed to give temporary relief from the disfigurement of comedones, especially when situated, as commonly, upon the face. The affected surface of the skin should be well moistened with glycerine and water, or a more agreeable lotion may consist of glycerine one-half ounce, rose water two ounces, and oil of eucalyptus twelve drops. Then the Kippax comedo extractor can be employed to remove as many comedones as is thought advisable at one sitting. This little instrument, which consists of solid metal with an acne lance at one extremity and a curette at the other end, in which an aperture has been cut on the reverse side and slightly rimmed out to fit around the point of the comedo, should always be used by making firm pressure in place of the more convenient watch key or thumb nail, but which give rise to more pain and liability to bruise the skin. Sometimes the point of a fine needle can be used with advantage to loosen the epithelial rim of the comedo before making pressure with the extractor. After treatment consists of bathing the parts with hot water, followed, if needed, with an application composed of the above glycerine lotion, to which three times the quantity of dilute alcohol has been added. If there is much sense of soreness, ten drops to the ounce of *arnica* tincture can be added with benefit. These procedures for removal may need to be repeated occasionally, as the plugs reform.

When, for any reason, extraction of the retained secretion is not attempted, other mechanical means will accomplish some good, such as a thor-

ough daily rubbing with a soft fat or oil, followed by friction with a nail brush, and soap and water, ending with the light application of the lotion last named. In obstinate cases, a thin paste made of kaolin one ounce, glycerine six drachms, and vinegar one-half ounce, may be used to loosen the sebaceous plugs, or one-half drachm of precipitated sulphur in glycerine and rose water, half ounce of each and milk of magnesia, three ounces, may be used as a stimulant. Local *massage* by competent operators or with an electric vibratory or mild treatments with *high frequency* currents, also serve to give better tone to the parts affected. When possible external treatment of the face should be done in the evening, so its immediate effects may be the least apparent. Unirritated comedones on the unexposed parts of the skin need not be treated locally, as they are nearly certain to disappear spontaneously or from general treatment.

Physiological measures of treatment suggested for seborrhœa are applicable to comedo, and, together with the internal pathogenetic remedies, often render local treatment beyond simple mechanical cleanliness unnecessary. See indications for *Dig.*, *Juglans reg.*, *Nit. acid*, *Pet.*, *Sabina*, *Selen.*, *Sepia* and *Sulphur*.

MILIUM

(*Acne albidia*; *Strophulus albidus*; *Grutum*.)

DEFINITION.—Pearly white, millet seed to slightly larger sized sebaceous cysts, situated under the epidermis, generally located on the face where the skin is thin and devoid of much subcutaneous fat.

Milia are occasionally congenital, but are most common in young adults, and may occur at any age. Their ordinary situations are about the eyelids, cheeks, temples, the external genitals of men, and the internal face of the labia minora of women. They are not infrequently found about scar tissue. They usually appear to be just within or upon the skin, but occasionally project from it and look as if filled with a milky fluid. They develop very slowly and may persist for a long time; very rarely reach a larger size—grape seed to a small bean—and finally, if not removed by artificial means, disappear with the normal desquamation of the epidermis. They are unattended with any subjective sensations, and are of slight clinical importance otherwise than the disfigurement they produce.

ETIOLOGY AND PATHOLOGY.—Whether milium is due primarily to causes which interfere with the expulsion of sebum or to some interference with the transformation of epithelium lining the gland into fat, is not determined. In milia occurring in the neighborhood of cicatrices, following loss of tissue from injury or disease, the cause is purely mechanical and results from either the severance of one or more acini of an oil gland from the main portion, or from compression by a contracting band of cicatricial tissue. In some cases the pathology of milium would indicate an origin from some primary defects in the normal transformation of the epithelia of the gland. Thus, calcareous,

horny and colloid changes have been found. Robinson suggests that milia which do not contain fat may originate from misplaced embryonic cells from the hair follicles or mucous layer of the epidermis. Ordinarily, a milium is composed of a fatty nucleus and a covering of several thin envelopes of cornified epithelia. As this mass, from some part of a superficial sebaceous gland, approaches the surface it is covered by a thin layer of the supra-imposed corium containing papillæ and the transparent epidermis. After incising the external cover, a spherical shaped body can be pressed or lifted out, appearing of nearly the same size as when seen *in situ*. Rarely can the opening of the sebaceous duct be found.

DIAGNOSIS.—Milia can hardly be mistaken for any other lesion. Vesicles of the same color may be recognized by their fluid contents and usual acuteness of development. The minute growths of xanthoma simplex, which commonly are found about the inner part of the eyelids, may be distinguished from milia by their yellow hue, and, in case of doubt, by the inability to remove them by the means generally employed to remove milia. The blackish points of comedones, their situation in the sebaceous duct, and their shape on removal, are sufficiently unlike milia. **PROGNOSIS** is invariably good.

TREATMENT.—Most individuals afflicted with milia endure the slight cosmetic disfigurement, or in a rude way treat themselves. A milium may be easily removed without leaving any blemish by opening the outer covering with a milium or acne knife and gently pressing or turning it out. Immediate application for a few minutes of very hot water is the only further local treatment needed; though touching the sac-like opening with *iodine tincture*, fifty per cent. solution of *chromic acid*, etc., have been advised. *Electrolysis* is a satisfactory method of treatment and especially as applied to milia of the male external genitals. Internal medication should be directed to any peculiar features of the local lesions or constitutional condition if present.

WEN

(*Steatoma; Atheroma; Sebaceous cyst.*)

DEFINITION.—**Wens** are tumor-like sebaceous cysts, larger than milia, sometimes reaching the size of a hen's egg. Wens are most commonly found upon the scalp and neck, but they may occur in any part of the skin supplied with sebaceous glands. They usually grow slowly, give rise to no pain or change of color in the external skin over them unless they become inflamed. There may be one or several cysts, but they are rarely numerous. They are usually round in shape, sometimes flattened on top, and occasionally irregular in outline; situated beneath, within or upon the skin, but seldom attached to the deeper tissues. Occurring on the scalp, they may be covered by the longer hairs or protrude to an unsightly degree; and if baldness exists, lead to considerable disfigurement. The duct of the glands is generally closed, but may be found in some cases patent enough so that some of the contents of

the cyst can be pressed out. To the touch wens impart a doughy or elastic quality, as they are either rather flaccid or tense. If they become inflamed they feel softer as a rule, and are then liable to result in suppuration and ulceration.

ETIOLOGY AND PATHOLOGY.—In most cases wens are caused by a retention of the product of the sebaceous glands and a counter thickening of the glandular envelope from pressure, forming the cyst wall. The contents of the cyst are made up from masses of more or less changed sebum and broken down epithelia, and as a result may vary in consistency from a granular, cheesy, semi-solid to a milk-like fluid; sometimes, also, they contain a rudimentary hair. Other pathological changes occur in some cases, such as a connective tissue new growth, forming a large part of the tumor; and atheromatous and calcareous degenerations.

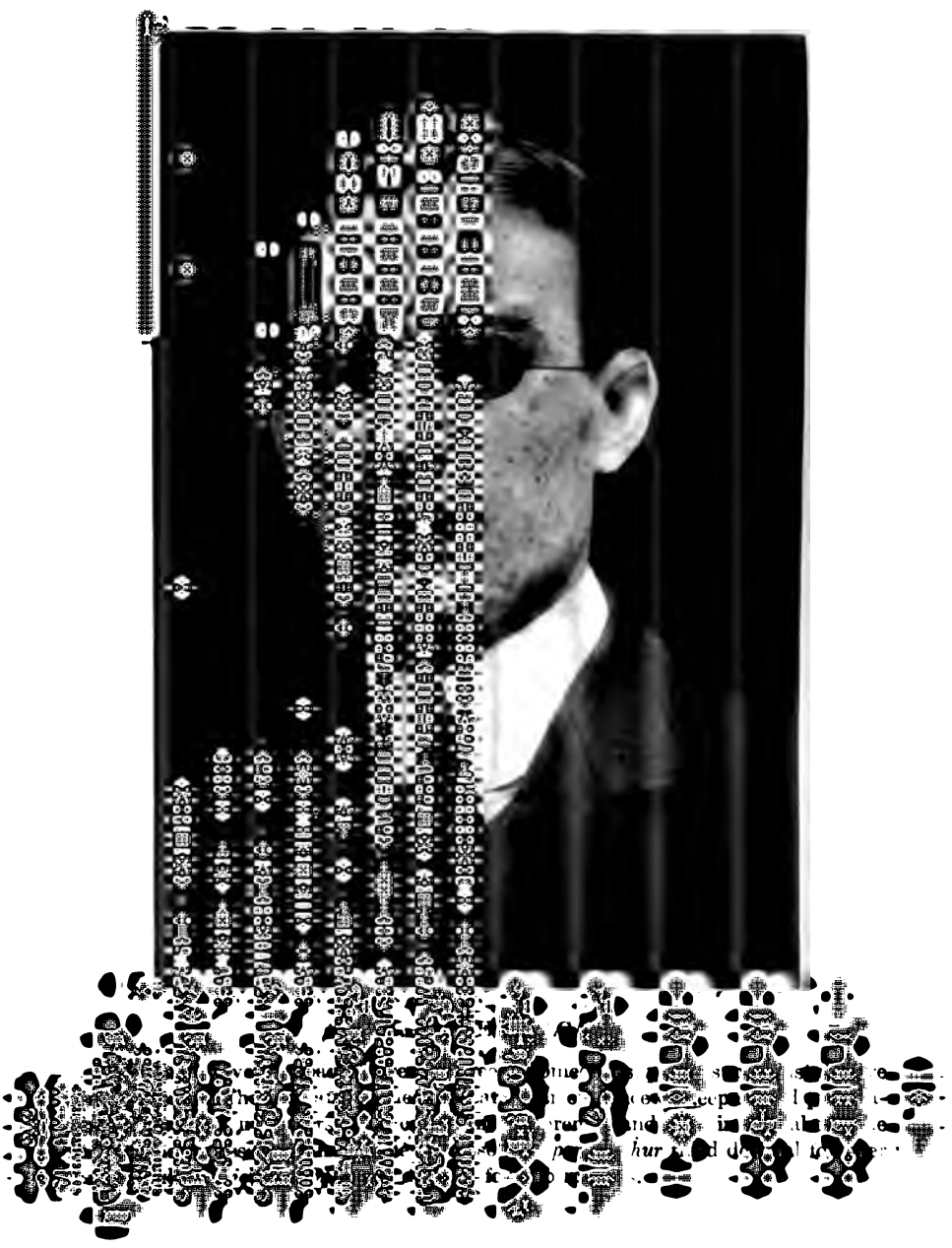
DIAGNOSIS.—Fatty tumors may be distinguished from wens by the lobulated and "pillowy" sense to touch of the former, their different location, being situated about the shoulder blade, loins and buttocks in nearly all cases, while wens are seldom found other than on the scalp and neck; from syphilitic nodules, by the evidences of other lesions or history of syphilis, and their usual pain and tenderness to pressure.

Broken-down wens may be differentiated from boils and circumscribed abscesses by the history of long-standing tumor, previous to suppuration.

TREATMENT.—Operative treatment only is indicated. *Excision* under strict antiseptic precautions is probably the best. The parts over the cyst having been incised, the cyst wall is carefully dissected out with or without rupture and evacuation of its contents. The wound may be evenly closed without sutures, dusted over with *iodoform*, thickly covered with antiseptic gauze, and held in place by a bandage. Unless some disturbance arises this dressing need not be removed for several days or a week. The author has never seen other than good results from this method. Owing to the danger from wound infection on the scalp other methods of treatment have been advised. Of these, *caustics* are usually too painful to be generally employed, and the *ether injection* method or the application of *fuming sulphuric acid* have no decided advantage. Small wens may be incised, their contents expressed and the *electric needle* (electrolysis) applied at several points of the cavity.

ACNE VULGARIS

DEFINITION.—An inflammation of the sebaceous glands and of the follicles of the lanugo hairs situated therein. Acne is one of the most common and intractable of skin diseases. It is usually a folliculitis, less frequently a perifolliculitis, and probably is a direct result in some cases of decomposition of the retained sebum. The characteristic features of acne are: (1) Location on the face, neck, shoulders and chest, rarely appearing to any extent on any other part of the cutaneous surface. (2.) Period of occurrence coincident



with the development of sexual life of both sexes. (3.) Its perpetuation, if not origin, from some irritation (physiological or pathological) of other near or remote organs or tissues. (4.) Primary lesions of small, red, solid elevations of the skin, followed by spontaneous resolution, or by central pustulation, without subsequent scar if superficial, with pitting if deep seated or involving the true skin and successively appearing singly or in groups of a few or many. Simple acne, which is chiefly a blemish of youth, untreated, is a self-limited disease of from five to eight years' duration. Acne occurring in middle life is of uncertain duration, and usually of a more pronounced inflammatory type, attended with the formation of tubercles, and in many cases with marked induration of adjacent tissue. In such cases, if the lesions are permitted to mature (suppurate) scarring follows.

Pathologically acne may be divided into acne papulosa and acne pustulosa, but as the smaller lesions occur chiefly in youth and the larger in middle life a better division seems to be into acne simplex and acne indurata. All skin diseases, with secondary acnoid eruptions, or clinically different, should be excluded, or qualified by other titles, such as bromine acne, acne varioliformis, etc.

Acne simplex.—The location of acne simplex is most often on the forehead, cheeks and chin, but it is quite common on the back of the shoulders and upper part of the chest, and sometimes occurs on the extremities. The eruption is usually bilateral without symmetry. While nearly always developing about the age of puberty in both sexes, it may occur at an earlier or later period of life. The lesions consist of comedones, papules and pustules, and vary in size from a pin's head to a split pea; they vary in number from one or two to hundreds. Frequently a comedo forms the centre of the papule and can be seen also after the transition into a pustule. Papules often appear independent of the comedones; and in some cases many papules resolve without passing into pustules. Usually the lesions may be found in all stages of evolution in the same individual—from the blackish pointed comedo, the bright to dusky red papule, to the yellowish white pustule with a more or less red areola. The effects of previous lesions—stains and scars, may be found also. The former disappear gradually and the superficial scars become much less distinct in time. A negative feature of acne is the absence of subjective sensations, except a sore feeling when pressed upon and sometimes a slight burning. Acne simplex is essentially a chronic disease, and untreated it may last from the advent of puberty to the period of full maturity, when it is likely to spontaneously disappear. Occasionally it passes gradually into the deeper seated acne indurata and in a small proportion of cases the two forms co-exist in youth.

Acne indurata.—Acne indurata occurs in the same localities as acne simplex, but is more frequently found upon the neck and back than the latter. It pursues a still more chronic course, rarely or never entirely disappearing without treatment. The lesions may be few or many, isolated or close together. They originate as deep seated round, ovoid or flattish indurations; vary in size

from a pea to a cherry, and as they slowly enlarge, the skin becomes a dark reddish color. Some suppurate quickly, more are indolent and contain little pus, which, if let out by incision, is apt to form again. If not opened there is no tendency to spontaneous rupture, and resolution may be delayed for weeks. Comedones are not usually present, and when found have no direct pathological relation as in acne simplex. Scars are a frequent effect of acne indurata, at first of a purplish color they remain stationary, or very slowly fade away. Keloidal transformations sometimes follow, and rarely the acne induration may pass on to fibroid degeneration without the occurrence of supuration.

Seborrhœa and seborrhœic dermatitis may complicate either form and give rise to symptoms common to those affections. The term acne has been used freely in giving title to cutaneous diseases little or not at all related to true acne. A few need be named here in explanation only:

A. *Acne cachecticorum* lesions are pea to cherry sized, flattened, flaccid, vivid red formations, containing a little sero-purulent fluid; located chiefly upon the trunk and extremities and occurring in persons poorly nourished, depressed, strumous, or scorbutic, and is frequently associated with lichen scrofulosum. Though it may resemble acne indurata of a low type, it is probably partly or wholly tubercular in nature (see scrofuloderma).

B. *Acne artificialis*, drug eruptions (see dermatitis medicamentosa).

C. *Acne rosacea* and *acne hypertrophica* (see rosacea).

D. *Acne decalvans* (see folliculitis decalvans).

E. *Acne keloid* (see dermatitis papillaris capillitii).

F. *Acne molluscum* (see molluscum contagiosum).

G. *Acne adenoid* (miliary lupus, etc.) (see lupus vulgaris).

ETIOLOGY.—The causes of acne are varied if not numerous. It has been viewed as a local disease, and when due to local stimulants or irritants, as the tar preparations, for instance, this is true. Here it is an artificial disease, however, and quite different in origin from the true disease arising from a vital source more or less remote from the skin. A predisposing cause is no doubt the greatly increased activity of the sebaceous glands in the few years subsequent to the advent of puberty. From the hyperæmia of physiological activity it is only a step to congestion, if some influence intervenes to prevent the normal intermission in physiological hyperæmia of a part. The flushing of the face from moderate mental emotions is a common illustration of a reflex effect on the skin. Gastro-intestinal reflexes are known to affect the circulation of blood in the face. Flatulent dyspepsia and constipation are often apparent factors. Abnormalities of menstruation appear to be the underlying cause in nearly fifty per cent of cases in girls and young women. Genito-urinary disturbances, masturbation, and affections of the mucous membrane of the nose and throat may be occasional causes. In many cases the predisposing influence is probably a general one. Anæmia and debility of various kinds in the young, too rapid growth, a weakened circulation, as manifested by cold extremities; the scrofulous type of constitution, etc., may be men-

tioned. Such causes operate to lower nutrition, which precedes the local impairment of function in the sebaceous glands.

In middle life sedentary living, the gouty diathesis, diabetes and struma, together with functional disturbances in the digestive, urinary and upper respiratory tracts, uterine and ovarian diseases in women and intemperance of one kind or another in both sexes are the most frequent causes of acne. In a few cases the causes seem to be entirely local. Whether the invasion of the sebaceous follicles by the staphylococcus pyogenes is an immediate cause, or a degree of inflammation from changed sebum first arises is not determined. The surface of the skin is nearly always subject to the presence of pus cocci, and the possibility of their being local exciters and disseminators of acne under favoring systemic or surface conditions may be a reasonable basis for some of the modern local treatment of this disease.

PATHOLOGY.—The pathological changes in acne result from inflammation, frequently carried to suppuration and destruction in some degree of the sebaceous follicle. According to Elliot, the inflammation begins in the tissue around the follicle, or as a perifolliculitis and only subsequently is the follicle invaded. Under lowered vitality or changed nutrition ordinary causes may excite the inflammation. Thus temporary or reflex hyperæmia, the elimination of some virus poison or effete material by the glands, retained secretion, micro-organisms, etc., may be the link between primary etiology and pathology. One or more follicles may be involved and may be partly or wholly destroyed. Pus-filled pockets may also form in the adjacent tissues, ultimately discharging into the gland cavity. In the contents of the gland numerous micrococci can be found, and recently Unna and Gilchrist have found a special bacillus in the acne pustule. Though this microbe has definite pus producing properties, its shape has been variously described as thick, rod-like, straight or curved.

DIAGNOSIS.—Bearing in mind the characteristics of acne, mentioned at the beginning of the chapter, its usual association with comedones (in acne simplex) and frequency of occurrence, little difficulty will be found in diagnosis. It might be confounded with papulo-pustular eczema, rosacea, the pustular syphilide, small-pox and sycosis.

Papulo-pustular *eczema* may be known by its smaller lesions, occurring in patches, unconnected with comedones and showing signs of exudation and crusting. Itching is also a prominent symptom of eczema. *Rosacea* occurs usually in mature life; begins with temporary, followed by more permanent redness of the skin of the face, and dilatation of the superficial blood-vessels. Acne lesions, if present, are secondary in occurrence. The *pustular syphilide* appears generally in groups, and underneath the crusts which cover the base of the lesion small excavated ulcers may be found. A history of the case and the presence of other forms of syphilide, with a wider distribution than is common to acne, may further aid the diagnosis. The *tubercular* or *gummatous syphilide* of the skin is apt to occur in groups, and degenerate into ulcers, which often spread by one-sided extension. When the nose only is affected,

the resemblance to acne may be very close, and other evidence of syphilis, or the effects of treatment, may need to be known in order to determine its nature. *Small-pox* can be excluded by the absence of constitutional symptoms, or the duration of the eruption longer than that eruptive fever. *Sycosis* occurs only in adult males, is strictly limited to the bearded part of the face, and a hair occupies the centre of the lesion instead of a comedo, as in acne.

PROGNOSIS.—Acne is a curable disease under proper management and treatment. In making any forecast of the probable duration of acne, allowance must be made for the uncertainty of the patient following the directions of a protracted therapeutic course especially if the causal treatment involves continued self-denial.

TREATMENT.—In the treatment of all diseases it is of the first importance to remove the learnable cause or causes, original or secondary. In acne it is almost the *sine qua non* to success. Moral perversions are to be met by moral remedies; the pride evoked in some, in others fear aroused by exaggerated pictures of evils yet to come in disfigurement of skin and in other directions. In the correction of onanism there is no auxiliary treatment equal to physical weariness or exhaustion, and in acne from this cause abundant exercise is an efficient aid. Sources of irritation in the genito-urinary sphere should be sought for when suspected. A contracted prepuce or meatus, adhesions in both sexes, and uncleanliness in the sometimes otherwise cleanly are conditions to be corrected. Cool or cold water should always be used to bathe these parts, and, as a rule, for the daily bath. Frequent or long continued disturbance of function in any part of the digestive tract is often the hidden fire which flames forth in acne and its related disease, rosacea. The art of dietetics pertains here. In the plethoric, reduction and more or less substitution of vegetable for animal food is usually indicated. In the anæmic increase of quality or quantity of nitrogenous food, frequently of the animal kind is needed. Idiosyncrasy sometimes plays a part. So simple a food as boiled rice may cause congestion of the face, and it is not uncommon for such effects to follow the use of fruit jellies, beef, shell fish, etc. In nearly all cases too little liquid is taken. The skin is an important organ of excretion as well as secretion, and few realize the necessity of a full supply of water to maintain these functions in healthful activity. Attention to regimen and habits of exercise will often cure the very usual constipation. An indicated drug may, however, be needed for this lack of function.

Massage, mechanical or otherwise, general or local, and the general tonic use of *static* electricity and of the *high frequency currents* have proven of great value in improving the general tone.

Local treatment, if employed, should be on well defined principles. In acne these may all be embraced under (1) absolute cleanliness; (2) pathogenetic irritation or inflammation; (3) depletion, and (4) radio- and phototherapy and the high frequency currents. The first may be obtained by the use of soap and water, or a medicated soap having solvent properties, such as *salicylic acid* or *ichthyol*, and the occasional use of a saturated solution of

boric acid applied hot, or the same in strong alcohol applied cold. Sometimes cleanliness and artificial irritation may be had from the same agent, as in the use of soft soap or *green soap* applied with friction. The use of very *hot water* alone dissolves and washes away the secretions to some extent, and at the same time produces a temporary congestion which is more or less curative in its reaction. This simple measure may be pushed too far, however, and defeat rather than aid a cure. As a rule, local applications to the face should be made at night shortly before retiring, giving time in the interval before morning for the temporary aggravation, if any, to subside. When the skin is sensitive, a mildly antiseptic ointment may follow the bathing, to be washed off in the morning. *Boric acid*, twenty to forty grains to an ounce of cold cream, or *salicylic acid* or *resorcin*, five to twenty grains to an ounce of the same vehicle, may be employed. If needed, a dusting powder composed of *boric acid*, one part to eight parts of finely powdered starch, or stearate of zinc can be used. *Calendula*, *bismuth*, *calomel*, *ichthyol* or *aristol* can be applied likewise.

More decided pathogenetic effects (stimulation, etc.) may be needed in cases of acne of a severe type, or occurring in persons who have thick and sluggish skins, and remedies of an antiseptic character are usually chosen.

A simple formula for this purpose is:

R. Hydrarg. bichlorid..... gr. 8.
 Spr. vini rect..... ʒ 2.
 Aquæ distil..... ʒ 4. M.

Whenever the above or similar prescription is prescribed for local use, the patient should be told that it may excite irritation, and then it should be discontinued temporarily for milder measures. When employed, cleansing treatment should precede its application and a mild ointment (before named) follow, if needed.

Ichthyol soap and lotion will be found serviceable in some cases of acne for cleansing and stimulating purposes. Stiefel's (10%) *ichthyol* soap may be first used to thoroughly cleanse the surface, twice daily, followed immediately by the following lotion, recommended by Unna:

R. Ammoniz sulph. ichthyolat..... gr. 12-120.
 Alcoholis (90%),
 Etheris..... aa ʒ 4. M.

The strength of the *ichthyol* may bear a relation to the degree of the disease or the texture of the skin. It is advisable to always begin with a mild strength and increase it subsequently as required.

Numerous applications containing *sulphur* have been recommended for acne pustulosa, and among these the following has given the most satisfaction:

R. Sulphuris precipitati..... ʒ ʒ.
 Glycerini,
 Aquæ rosæ..... aa ʒ ʒ.
 Milk of magnesia..... q.s. ʒ 4. M.

Acne of the trunk calls for more energetic treatment and stronger lotions or ointments. A thirty per cent. solution of *formaldehyde* has proven satisfactory for acne of the back.

Depletion is effected by the use of the acne lance. This is inserted in the centre of the papule or pustule, to give free exit to retained sebum or pus, which may be gently pressed out with the comedo extractor or with the dermal curette. Afterwards hot water can be applied to the parts for a few minutes to further depletion and discharge. The lancing is only slightly painful and may be repeated every few days. The cases in which depletion is indicated are those which do not yield to other well-directed treatment, and when the lesions are large or deep seated. Puncture in selected cases hastens cure by relieving the follicles of retained matter, the capillaries of stagnant blood, by limiting the formation of pus, and by preventing rupture of the epidermis. In the deeply situated suppurating lesions it is an essential procedure to prevent scarring. After puncture of acne lesions the surface should be cleansed with alcohol or some alcoholic preparation.

For many cases of mild acne (without pustulation) the regular application of the *high frequency currents* has proven most beneficial in the editor's hands. Nearly one hundred cases have received this method of stimulation, once or twice a week, for about five minutes. The particular form of *high frequency currents* used should depend on the exact nature of the case, the resonant (*Oudin*) and the hyperstatic (*Piffard*) being suitable when excessive stimulation is needed, while the helicoidal shunt of D'Arsonval suffices for the large majority of mild cases.

The *Röntgen rays* have been of marked benefit in the chronic, obstinate indurated and deep seated acne, especially when the pus infection is paramount. The editor makes his exposures at a distance of eight to twelve inches, and for four to ten minutes' duration. This is repeated every three to five days, and it has seldom been necessary to go beyond ten treatments to secure permanent results. The Friedlander hood is used to cover the tube, and parts not to be treated are also protected. It is seldom necessary to carry the treatment beyond a point where a mild erythema develops.

In no disease is there better opportunity to watch and estimate the therapeutic effects and value of drugs and the relation of internal subjective phenomena and objective lesion thereto than in the treatment of this cutaneous disease. A clearly indicated drug often benefits promptly and progressively. Not a few cases of acne, however, are unattended with subjective symptoms; either the causes were never apparent, or, having ceased to manifest symptoms, the momentum of the disease perpetuates itself, possibly from the presence of local conditions. In such cases drugs which produce papulopustular lesions, especially in the regions affected, are to be considered. See indications for *Agar.*, *Alum.*, *Aloes*, *Am. carb.*, *Ant. crud.*, *A. tart.*, *Arg. nit.*, *Arnica*, *Aurum mur.*, *Ars.*, *A. brom.*, *A. iod.*, *Baryta act.*, *B. carb.*, *Berb.*, *Bell.*, *Borax*, *Bor.*, *Cal. phos.*, *C. sulph.*, *Chel.*, *Colch.*, *Crotal.*, *Coc.*, *Cycla.*,

Dig., *Graph.*, *Hepar*, *Jugl. reg.*, *Kali brom.*, *K. bich.*, *K. iod.*, *K. mur.*, *Lyco.*, *Nit. acid.*, *Nux. mosch.*, *N. vom.*, *Pet.*, *Phos. acid.*, *Puls.*, *Rhodod.*, *Sabina*, *Sarsap.*, *Sepia*, *Silica*, *Sul.*, *Thuja* and *Zinc*.

ACNE VARIOLIFORMIS

(*Acne atrophica*; *Acne ulcerosa*; *Acne filaris*; *Acne frontalis sue necrotica*; *Acne rodens*; *Lupoid acne*. etc.)

DEFINITION.—A papulo-pustular eruption, occurring over the brow, scalp or rarely other regions, slow in its evolution, chronic in course, attended with loss of tissue, which leaves a depressed scar similar to that caused by a variola pustule.

SYMPTOMS.—The lesion of acne varioliformis begins as a reddish-brown, deep-seated, pea to bean sized, indolent papule. The central portion may become pustular, or covered with an adherent, flattish, yellowish-brown crust which sometimes appears depressed below the surface. Underneath the crust will be found a sharply defined ulcer with an uneven color. Left to itself the crust may increase in size, and after an uncertain interval fall off, leaving a reddish-brown cicatriform lesion, which finally becomes white. There may be subjective sensations of slight itching, or none at all.

Occasionally the disease is located about the nose, ears, the back and sternal aspects of the trunk, and with exceptional rarity may be generally distributed. The lesions may be few or many; discrete, crowded together in groups; sometimes linear or circinate in arrangement. The lesions are frequently pierced by a hairy filament. The course of the disease is very chronic, sometimes lasting for years.

ETIOLOGY AND PATHOLOGY.—No definite cause for the disease is known. It has been attributed to syphilis, but the relation is not frequent enough to warrant classing it as a syphilodermata. It is commonly a disease of middle life. The lymphatic temperament, rheumatic diathesis, parasites, gastro-intestinal irritations, general tuberculosis, and exposure to heat have been mentioned as causes.

Pathologically, the eruption appears to be due to microbic infection. Sabouraud believes that both the microbacillus of seborrhœa and the staphylococci play a causal part. At all events, the process is inflammatory, involving the pilosebaceous structures, with consequent destruction of the follicle and surrounding corium.

DIAGNOSIS.—The diagnostic points of acne varioliformis are the papulo-pustular lesions, their slow evolution, chronic course, resulting scars, usual location on the brow and scalp and appearing in middle life. *Variola* can be excluded by the absence of constitutional symptoms and lack of rapid efflorescence. *Acne vulgaris* may be easily distinguished by the absence of lesions on the scalp, absence of ulceration and the presence of comedones, etc. A *pustular syphilide* may present objectively a close resemblance to acne varioliformis. With the former there may be usually found other evidences of

syphilis, such as other forms of syphiloderm, adenitis, mucous patches, and possibly a clear history of infection. A pustular form of *folliculitis decalvans* may be differentiated from *acne varioliformis* by the small pin-head sized postules, each pierced by a hair, occurring in the former; its limitation to the hairy surfaces of the scalp, beard, etc., and the irregular patches of alopecia resulting therefrom.

PROGNOSIS.—Aside from the cicatricial deformity, a cure may be expected in all mild cases of *acne varioliformis*. Even the severe cases, while persistent, finally yield to treatment; sometimes the tendency to recur is a feature.

TREATMENT.—Causal methods of treatment are to be instituted when any such basis for a prescription is found. A history of syphilis or tuberculosis may point to remedies. Loss of vigor, improper diet, or injurious habits may call for the employment of *physiological* methods. The *Röntgen rays* have proven beneficial in this condition.

Locally, perfect cleanliness will be usually sufficient in that direction. This can be secured by the use of soap and water alone, or in conjunction with some mild antiseptic lotion. Much the same preparations as advised in *acne vulgaris* have been recommended as external applications in *acne varioliformis*. In the few cases seen by the author, ordinary soap and water locally, and the administration of the indicated drug, have proved efficient. See indications for *Arsen. iod.*, *Colch.*, *Kali brom.* and *Silica*.

C. DISEASES OF THE HAIR AND HAIR FOLLICLES

HYPERTRICHOSIS

(*Hypertrophy of the hair; Superfluous hair; Trichauxis; Polytrichia; Hirsutes, etc.*)

This is a condition in which there is an abnormal growth of the hair, or a growth of strong hair at an age when or in situations where only downy hair is normally found. This departure from the usual development of the hair may be congenital or acquired, general or partial, and sometimes nearly universal. Even though the whole surface of the trunk and extremities are covered with hair, certain places like the ends of the fingers, palms, soles, eyelids, etc., are always free. The excessive growth may be in the size of the hair, or its length, as well as in unusual location; sometimes several hairs grow from one follicle. In these cases there is very often a deficiency in the growth of the teeth, seldom excess of development. The most important forms of superfluous hair growth are those occurring upon the face of women, chiefly at puberty and the climacteric periods.

ETIOLOGY.—Most cases are due to hereditary causes, such as atavism, mental impressions, nervous influence. Sometimes local influences, such as exposure to sun and wind, continued application of heat and moisture, use of pilocarpine, appear to have stimulated a growth of hair. Occurring in women, the causes are nearly always hereditary; it will be found that the mother or

some other relatives of the same sex of the preceding generation had been similarly affected. Even in later life, there is nearly always some hereditary influence apparent. The disease is very much more common in some nationalities than in others. These growths of hair are most apt to occur at the climacteric period in the lives of women, and at the same time there may occasionally appear decided change of voice and manner. Temporary growths of hair have been observed in pregnancy, from delayed or suspended menstruation and from injuries. Many cases of excessive growth of hair in normal situations have followed severe sickness, and in some the hypernutrition in this direction has seemed to be at the expense of the general system.

TREATMENT.—General or extensive hypertrichosis is to be endured as a permanent blemish, because the difficulties of removal in time and patience are nearly insurmountable. At the same time health or life is not at stake, and the surface disfigurement can be quite or nearly hidden from view by the clothing. Very moderate growth of superfluous hair on the face or other parts may be removed by *electrolysis*. The success of this method, however, depends upon the expertness of the operator in the use of suitable instruments. Unskilful attempts at extraction of hairs by electrolysis will do no good, and may do harm. The author has seen several cases where increased growth of hair has followed such treatment.

For the operation, a galvanic battery of sixteen to thirty cells, a needle-holder, a fine steel or irido-platinum needle, the usual cords, an electrode, a rheostat, a milliamperemeter and epilation forceps, are required. A low power lens may be used to see the parts clearer, and may be attached to the needle-holder (Piffard's). An interrupter attached to the holder should not be used because the current should be broken at the positive electrode and not at the needle. The strength of the current will vary with the sensitiveness and thickness of the skin. Usually one-half to three milliamperes will suffice.

Everything being in order, the patient should be placed in a position of the greatest ease for both patient and operator and in a good light. The hairs to be removed at the sitting may be cut off to within about one-fourth inch from the surface. The stub of hair left is then grasped with the forceps and gently pulled outward in a line with its natural growth; at the same time the needle attached by means of the needle-holder to the negative pole of the battery is passed down beside the hair and on a line with it into the bottom of the follicle. Little or no force is used in inserting the needle; if rightly directed it slips easily into the depth of one to three-sixteenths of an inch, according to the depth of the follicle. The patient who has held the handle of the sponge electrode connected with the positive pole in one hand may now connect the electric circuit by placing the palm of the other hand upon the sponge. Evidence of electrolytic action will show immediately by the appearance of bubbles of froth, and in a few seconds to a minute the hair will come away with very slight traction with the forceps. The current is broken by the patient removing the hand from the sponge before the needle is withdrawn.

A small papule or wheal appears at once at the site of removal; it soon begins to fade away, and on the second day only a point remains, which may be gradually transformed into a minute scar. Occasionally the scars are larger and more noticeable, or keloid may result from too strong or too long use of the electric current. Hairs near together should be removed, as a rule, at the same sitting, but not too many at the same time, to avoid exhausting the courage of the patient, and the liability of producing undue local reaction. Fifteen to forty hairs represent about the limit of removal at one seance. Languo hairs are best left untouched unless at a later period they show a tendency to develop into larger hairs.

The pain from the operation is considerable to sensitive patients, but cannot be called unbearable, and is almost certain to be felt less at successive sittings. When there is unusual sensitiveness, a ten to twenty per cent. solution of *cocaine* in alcohol may be brushed over the part. More perfect anæsthesia can be made by kataphoresis. This is done by moistening some porous material laid upon the skin with a solution of *cocaine*, covering it with an electrode and allowing a mild current to pass through. Another device is to dip the needle in *oleate of cocaine* each time it is inserted. The disadvantage of cocaine is an increased inflammatory reaction from its use, and a possible general effect if much is used. Bathing with warm water is the only after treatment needed, or if there is much soreness, *arnica* one part to ten each of alcohol and water may be used.

Other methods of removing superfluous hair are epilation, and the application of depilatories. Epilation is not only painful but worse than useless, as in place of the hairs extracted there are likely to grow larger and longer hairs. Repeated use of depilatories seldom permanently arrests the growth of hair, and they are always liable to inflame the skin if employed strong enough to separate the hair from the latter. Hence they are not recommended. If demanded, the following may be effective:

R. Yellow sulphate of arsenic,
Quick-lime āā 5 2. M.

Enough of the powder to make a paste to cover the hairy surface can be mixed with hot water and spread upon the skin with a spatula. When dry, or as soon as a sense of burning is felt, usually in about two minutes, it can be scraped off with the same appliance.

Also:

R. Sulphide of barium,
Pulv. oxide of zinc āā 3 1. M.

This is prepared and used in the same manner as the first formula.

If a depilatory is employed, it can be repeated as needed; when irritation of the skin results, some simple ointment can be applied, and the reddened skin hidden by dusting it over with a toilet powder. In cases of hypertrichosis, where it is impracticable for any reason to use electrolysis or depilatories, shaving can be indulged in; or if the hairs are few, they can be cut close to the skin with a pair of curved scissors every day or two.

When it has been impossible to use other methods, especially in patients having a dark growth, the editor has achieved good results from the use of the *peroxide of hydrogen* applied daily on a compress, gradually increasing from a fifty per cent. solution to full strength. It certainly bleaches and may retard the pilary growth.

The *Röntgen* rays have been used, but the results are not satisfactory, because of the large number of treatments necessary to prevent a recurrence and the liability of irritation. Ten minutes is about the maximum time and eight inches about the minimum distance used at an exposure.

Radium has been used in two cases by the editor, but after treatments lasting an hour and repeated ten times the hairs returned at the end of a month's time. Its action does not seem superior to the *X*-rays in any respect.

PROGNOSIS.—The function of the hair follicle to produce hair can certainly be destroyed by electrolysis, but failure to reach the papilla from misdirection of the needle, some anatomical peculiarity, or lack of sufficient current, may make it necessary to repeat the operation upon individual hairs. Then there is always the possibility of the downy hairs taking on a more vigorous growth, especially in younger women. The prospects of success from electrolysis may be said in a general way to be in proportion to the fewness of the hairs and the age of the patient.

TRICHIASIS

This disease really belongs in the department of ophthalmology, usually coming under the observation of oculists. **It consists in the congenital or acquired displacement of the hairs of the eyelids, so that they are directed backwards and rub the eyeball.** Subsequently lanugo hairs may grow from every part of the tarsal margin and point in the same directions. It may affect the lower or upper lid of one or both eyes. The disease is generally acquired from chronic inflammation of a granular or purulent character.

Distichiasis differs from the form described, in having a double row of cilia, the inner of which are directed inwards. Very often these hairs are not seen until the lids are everted. No downy hairs are seen in distichiasis. It may affect the whole or only a part of the lid. The effect is to produce irritation and diseases of the conjunctiva and of the cornea.

The **DIAGNOSIS** of both conditions is easily made by inspection.

TREATMENT is removal either by operation or by electrolysis, and sometimes by the administration of *borax* internally.

FRAGILITAS CRINIUM

(*Splitting of the hair; Trichozerosis, etc.*)

DEFINITION.—This is an affection of the hair, in which the body or the end of the hair becomes split.

It is usually a disease of the hair of the head, but may affect the hair of any part of the body. Etiologically there are two forms, the symptomatic and the idiopathic. Thus it may occur as a symptom of other diseases of the scalp, such as favus, seborrhœa and eczema; while in many cases there is no apparent cause, in some there may be debility, or general cachexia from constitutional disease. Most often the free end of the hair is the part affected; then the hair is apt to curl up on itself. Sometimes only a few hairs, and at other times many, are attacked by the disease. When air enters between the filaments, it gives the broken ends of the hairs a grayish look, sometimes a dusty look. Very often there is also a swelling of the hair, known as trichorrhexis nodosa.

ETIOLOGY AND PATHOLOGY.—The cause of this disease is often due to the presence of parasites. In other cases there is some interference with nutrition, either directly of the hair, or of a general character. *Pathologically* the only abnormal changes in the hair are fissures and an irregularity in the shape of the shaft; the hair bulb or root may be normal or shrunken and show evidence of the beginning of the disease in that part of the hair.

TREATMENT.—Measures to correct any depraved conditions of health should be instituted by physiological or other methods. If the disease is limited to the ends of the hairs, they should be cut off above the diseased part. If the body of the hair is involved near the scalp, shaving is advisable. For internal use see indications for *Calcareæ phos.* and *Fluoric acid*.

TRICHOORRHEXIS NODOSA

(*Swelling and bursting of the hair; Tinea nodosa; Trichoptilosis, etc.*)

DEFINITION.—This term is applied to a peculiar disease of the hair, in which nodes appear along the shaft, and a sort of green stick fracture of the hair takes place through them. The disease develops without any previous symptoms. The hair feels knotty to the touch, and along the shafts there is found a blackish or whitish transparent swelling, looking somewhat like the nits of pediculi. The nodes vary in size with the shape of the hair; commonly they are located nearer the proximal ends of the hair. When fracture occurs it may be transverse or longitudinal. If longitudinal and incomplete, then the appearance will be like that presented by pushing two brushes together end to end; if transverse and complete, the ends look brush-like, and sometimes there will be a frayed appearance, often throughout the length of the hair. Occurring in the beard, it often presents a singed appearance. The hair is usually firmly fixed in the follicles. The disease most often affects the beard of men and the labia majora of women.

ETIOLOGY AND PATHOLOGY.—The real causes of the disease are unknown; they are probably parasitic, but some cases would lead us to call it a trophic neurosis. There seems to be at times a hereditary tendency to the disease, and it has been traced back to great-grandparents. In the hereditary cases the disease is apt to show itself soon after birth. When it occurs in the beard,

it may be partly due to frequent pulling or violent rubbing. Micro-organisms have been found in connection with the disease by Raymond, Hodara and others, while as many other authorities fail to discover any. Cases presenting a history of direct contagion are rare. *Pathologically*, the disease seems to begin by an increase in size of the shaft of the hair. This swelling involves the medulla and body of the hair, leaving the surface cuticle unaffected. As soon as fracture occurs degeneration begins in the inner part of the hair, and the medulla is absorbed. The hair roots may be unchanged or slightly shrunken.

DIAGNOSIS.—Trichorrhexis nodosa should be distinguished from piedra and trichomycosis nodosa, in not being clearly parasitic and in presenting multiform swellings or fractures of the hair shaft, with healthy spaces between. From *piedra* it may be distinguished by the absence of hard, strong, white masses, composed of fungi, around the hair shaft. From the extremely rare disease, *trichomycosis nodosa*, it may be known by affecting principally the beard, and involving the whole contour of the hair, and not placed to one side of it as in the latter affection; and also by the absence of a parasitic growth on microscopic inspection.

TREATMENT.—A similar line of treatment as in fragilitas crinium is indicated, *i.e.*, to improve the general and local nutrition. Shaving is the only effectual local method, and should be followed by the application of a mild antiparasitic lotion or ointment. The *Röntgen rays*, applied continuously twice a week for three months, cured one case of the editor's.

MONILETHRIX

(*Moniliform or beaded hairs; Pili annulati.*)

Monilethrix is a rare form of fragility of the hair, exhibiting along the shaft nodes between which are narrower portions of the shaft, lighter in color than the pigmented nodes. A checkered appearance of the hair results. Fractures occur in the internodular portions, due to atrophic changes in these parts, whereas in trichorrhexis nodosa the seat of fractures are the nodes. A condition of keratosis pilaris and a varying degree of alopecia are usually present.

ETIOLOGY AND PATHOLOGY.—The disease occurs in both sexes, may be congenital or acquired and may be present in several members of the same family. Kaposi and others believe that the disease is due to a periodic aplasia of the hair. Nervous shock has certainly been an important factor in some cases, and Hyde reports acquired types due to traumatisms. Probably most cases are congenital.

TREATMENT must be directed along general hygienic and dietetic lines. Stimulation, local and general, may be achieved by massage, exercise and systematic bathing. The tissue remedies should be studied. The prognosis is necessarily poor.

LEPOTHRIX

A rare condition in which the hair becomes dry, brittle, rough, nodular and loosened in the follicle, involving the pilary growth of the axillæ and genital regions. It was first described by Paxton in 1869. Nodular masses or concretions are arranged along the whole length of the shaft, but do not cover the whole surface. These nodes are made up of spherical or elliptical micrococci which eventually invade the cortical layers of the hair. While thus engaged, a gluey substance is developed which forms the bulk of the concretions and affords a home for the cocci.

TREATMENT consists of frequent and thorough washings with soap and water and the application of corrosive sublimate, 1:2000; all being preceded by shaving.

TINEA NODOSA

This rare disorder of the hairs of the beard or mustache was first described by Cheadle and Morris. The root remains healthy while the hair shaft is covered with nodular masses consisting of a fungus which is composed of spores smaller than those of ringworm. The hairs are naturally brittle and split or break readily.

The TREATMENT consists in frequent shavings followed by the careful application of a mild and non-irritating parasiticide.

PIEDRA

Piedra is a nodular affection of the hair, in which mineral-like formations are found irregularly distributed along the shaft of the hair. These are so hard that they make a rattling sound when the hair is combed. The disease is almost exclusively limited to Cauca in Colombia, South America. It is mostly confined to the hair of the head, chiefly of women, but occasionally affects the beard of men. It is non-contagious, but probably parasitic.

ETIOLOGY AND PATHOLOGY.—It is said that the use of a mucilaginous oil or water, by the native women in dressing their hair, favors the development of the disease. The essential cause is a fungus growth, which is evidently stimulated by the warmth of the atmosphere, as the affection is more prevalent in the warm valleys. Under the microscope the nodes are found to consist of spores, mycelia and filaments. The surface of the growths is darkly pigmented and the affected hairs relatively small in size.

The DIAGNOSIS is readily made from the stony hardness of the nodes, as compared with the nodular enlargements in trichorrhexis nodosa, or the nits in pediculosis capitis. TREATMENT by applications of hot water will completely remove the nodes, and then avoidance of contributing causes would be probably sufficient to prevent a relapse, although the use of a hot corrosive sublimate solution 1:1000 may be necessary.

CANITIES

(*Grayness of the hair; Blanching of the hair; Whiteness of the hair; Spilosis poliosis; Polioties, etc.*)

Acquired Canities.—Grayness of the hair, beginning after youth, is too common to excite much remark. It may appear suddenly or gradually; affect the growth of a small part of the hairy surface, or become more or less general. In most cases the change of color of the hair is both permanent and slowly progressive; showing first on the head, often beginning about the temples, some time before gray hairs are seen in the beard. Exceptionally the beard may be first in the order of change or co-existent with the early whitening of the hair of the head. At a later period piliary growths on other regions of the body may lose their color. Rarely whitening of the hair may be temporary when it arises through disorders of the nervous system. The author has seen one case of complete whitening of the beard during the development of organic brain disease, in which the original color was fully restored with a remission of the cerebral symptoms, and remained unchanged until death a few months later from the brain disorder. Sudden bleaching of the hair has been reported from depressing mental shocks, such as severe fright, grief, etc. Such cases must be extremely rare. Acquired canities beginning before thirty-five years of age is deemed premature. There is, however, normally great difference in families or even among members of the same family in this respect. Males strongly resembling the maternal parent may retain the color of the hair years longer than those bearing the strongest paternal likeness, and less frequently *vice versa*.

Canities may be symptomatic to certain diseases which cause more or less temporary baldness; such as syphilis, alopecia areata, peripheral neuroses and leucoderma.

Congenital canities may be a part of the general absence of pigment in the tissues known as albinism, or it may be unconnected with that condition, and occur only in patches amid the normal hued hair. A few cases have been reported of a peculiar alternate whitening of short sections of the hair; between the white sections the color being natural and the hair otherwise normal. This condition has been termed *ringed hair* from its odd appearance.

ETIOLOGY.—Age is an ordinary cause of canities after middle life, but even at this period as well as in the premature form causes which underlie disturbances of innervation or nutrition, such as worry, dissipation of various kinds, overwork and local injuries, hasten the change. Heredity is often a factor in premature canities, and probably a nearly constant influence in the congenital form.

PATHOLOGY.—Grayness is due to one or both of the following processes: It is found that gray hair, especially beginning at the free ends of the hair, contains air in the cortex, which must have formed there or gained entrance from the atmosphere. Such hairs resume their natural color if deprived of

air by means of the air pump. Commonly whitening of the hair begins at the root from failure of the papillæ to produce or deposit pigment. Viewed from either the suspension of pigmentation or from the presence of air in the cortex of the hair, it is more than probable that the pathogenesis of canities is in the nature of a tropho-neurosis.*

TREATMENT.—Most dressings recommended for the artificial coloring of gray or white hair are decidedly objectionable, and many of them dangerous.

Kaposi recommends the following:

To obtain a black color:

R. Argent. nitrat.....	℥ 1.
Plumb. acetat.....	gr. 15.
Aq. cologn.....	gtt. 15.
Aq. ros.....	ad. ℥ 3. M

To obtain a brown shade:

R. Acid pyrogal.....	gr. 15.
Aq. cologn.....	℥ ½.
Aq. ros.....	℥ 1½. M.

Leonard recommends:

No. 1.

R. Bismuth. citrat.....	℥ 1.
Aquæ rosæ,	
Aquæ distil.....	℥ 2.
Alcoholis.....	℥ 5.
Ammonia.....	q. s.

M. Sig.—Apply in the morning.

No. 2.

R. Sodii hyposulph.....	℥ 12.
Aquæ distil.....	℥ 4.

M. Sig.—Apply thoroughly in the evening.

Few people care to take the time to make themselves conspicuous by dyeing the hair in these days. Much can be done to prevent premature whitening of the hair by physiological methods to improve any existing impairment of vigor, and something also by the use of internal remedies. See indications for *Graph.*, *Kreosotum*, *Lycopodium*, *Phos. acid.*

PLICA

(*Matted hair; Polish ringworm; Plica polonica; Trichosis plica; Trichoma, etc.*)

Plica is a condition of the external hair in which it becomes mechanically matted together with an admixture of dust and other substances,

*Some changes in the color of hair other than whitening may be due to trophic influences of a similar nature to the pathological origin of canities. This change is occasionally seen after general falling out of the hair from some acute or exhausting disease, when the renewed growth of hair is more or less changed in color. Circumscribed loss of hair may be followed by new hair of a different hue. This is observed quite often in the first hair growth after alopecia areata. Nervo-mental influences may, with extreme rarity, cause changes in the color of the hair. Most discolorations, however, are produced by the local action of chemicals. Occupations in which chemicals are largely used may cause changes in the color of the hair. Thus *green* hair is sometimes seen in workers of copper; *blue* hair on those employed in indigo works, or cobalt mines; *black* hair in miners of coal.

and is allowed to remain so until the scalp becomes inflamed, infected with pediculi, or the mass is lifted away from the scalp by the growth of the hair.

It is, therefore, purely the result of neglect and not a distinct disease, and occurs chiefly in the more ignorant districts of the Russian Empire. It is seen occasionally among emigrants from that country, and less frequently, and in a mild degree, among the uncleanly in this and other countries.

ETIOLOGY.—The causes are lack of cleanliness and combing of the hair, together with a certain superstition among the lower class of Russian and Polish people, that the formation of a plica will prevent or cure other diseases. *Neuropathic plica* is a term given to a rare phenomenon manifested by the contraction of the hair of a limited surface into a tangled firm mass impossible to unravel. Crocker mentions two cases which came on within a few hours after washing the hair in warm water. Nothing further is known regarding its etiology, but it is supposed to be of nervous origin.

TREATMENT.—The masses of hair and dirt may be removed with the scissors, and any other disease of the surface found present treated according to its nature. If a superstition in regard to a plica is cherished by the possessor, it may be cleansed with some deodorizing oil, soap and water, and then untangled with comb and brush. Nervous plica may suggest such remedies as *Borax* and *Vinca minor*.

ALOPECIA

DEFINITION.—A loss of hair, partial or general, from any hairy surface, but commonly affecting the scalp. There are four principal forms of alopecia: (1) *A. adnata*; (2) *A. prematura*; (3) *A. senilis*; (4) *A. areata*.

ALOPECIA ADNATA

(*Congenital baldness.*)

Congenital absence of hair may be partial or complete, temporary or permanent. It is a rare condition of the new born, nearly always temporary, and then due to a delay in the development of the hair, sometimes associated with imperfect development of other structures. Two or three cases have been reported where the condition was permanent, and in one, on examination of a section of the skin with the microscope, no hair follicles were found, but in the deeper portion of the corium rudiments of such structures were present. Rarely does the hair fail to grow after an interval of weeks, months or years.

What is known of the CAUSES and PATHOLOGY may be summed up as hereditary influence and prenatal defect in nutrition and development.

TREATMENT consists in the early administration of tissue remedies as indicated. See list of drugs for premature baldness.

ALOPECIA PREMATURA

(*Premature baldness; Alopecia presenilis.*)

Loss of hair before the fortieth year may be idiopathic or symptomatic. *Idiopathic premature alopecia* may begin as early as puberty, but not commonly much before the thirtieth year. At whatever period before middle age it begins, there is no apparent cause. There is usually at first an increase of the normal shedding of the hair, commencing, as a rule, about the temples and vertex. The hair may be reproduced, but is less vigorous with each reproduction until it ceases to appear. Sometimes the hair line at the sides of the forehead gradually recedes, sparing a central crest for a time longer and forming the arched forehead; or the whole forehead line may recede forming a high forehead. Frequently the hair becomes thin over the whole crown at the same time, or it may extend from the vertex forward. The resulting baldness is nearly always symmetrical. Occasionally there will be a temporary increased growth of hair. Left untreated, usually progressive thinning of the hair is not long delayed, though it may be very gradual. Less often the progress to baldness is rapid. Grayness of the hair does not precede it, as a rule, and the hair on sides and back of the head may remain unaffected.

Symptomatic premature alopecia may be temporary or permanent, depending on the nature of the pre-existing local or general disorder, which operated to cause it. The larger number of cases give a history of antecedent seborrhœic disorder, commonly called dandruff (*Alopecia furfuracea seu pityrodes*). Constitutional states which are often productive of baldness are the acute fevers, erysipelas, abuse of mercury, cachexias from such diseases as diabetes mellitus, phthisis, syphilis and leprosy (*Defluvium capillorum*). Continued mental anxiety and nervous shocks may also produce baldness. The loss of hair may begin during the course of disease or not until convalescence in the more acute affections. Commonly there is only a thinning of the hair, which may affect other hairy parts as well as the scalp. The hair is sometimes shed rapidly, at other times slowly and persistently. In most cases the baldness is temporary.

Local forms of *permanent* loss of hair may result from lupus erythematosus, scleroderma, folliculitis decalvans, the ulcerative lesions of syphilis, kerion, favus and sometimes from seborrhœa, which destroy the hair follicles (*Alopecia follicularis*). Local forms of *temporary* baldness may come from continued inflammation of the scalp in eczema, psoriasis, etc., parasitic affections, and from superficial local injuries.

ETIOLOGY AND PATHOLOGY.—Family tendency to baldness has been found to exist in nearly fifty per cent. of mixed cases of idiopathic alopecia prematura. In women the per cent. of heredity is much larger, though women are much less affected with baldness than men. This is accounted for by the greater abundance of fat in the scalps of females, more care given to their hair, and the lighter and less close covering of the head worn by that sex.

General differences in the occupation and habits of the two sexes probably exert an influence also. The daily application of water to the scalp, which is a habit with a large number of patients, contributes to alopecia. Brain workers and intellectual people are more often afflicted than the opposite types.

Pathologically, premature loss of hair is one of atrophy, both of the connective tissue of the scalp and of the hair producing structures, consequent to a diminished blood supply. Pincus is quoted as believing that the change is one of hypertrophy of the connective tissue, which by contraction compresses and leads to atrophy of the hair follicle. He also believes that in cases not due to heredity, chronic inflammation of the scalp in the years before puberty is the most active pathological cause. Seventy-five per cent. of the editor's cases have been due to seborrhœa in some form, so the microbacillus of Sabouraud may easily exert a large pathological influence. The etiology and pathology of cases of *symptomatic* alopecia vary with the nature of the antecedent diseases.

DIAGNOSIS.—Age of occurrence, symmetrical distribution and absence of any history or evidence of previous local disease serve to distinguish the idiopathic form. The recognition of the symptomatic form rests on a knowledge of the pre-existing diseases. Asymmetrical loss of hair may be differentiated from alopecia areata by the absence in the history of the latter of any related disease and by the sudden discovery of round or oval, smooth patches nearly or quite free from hair.

PROGNOSIS.—Progressive loss of hair can often be arrested by judicious treatment in the early stages of the idiopathic variety. Marked hereditary tendency to early baldness and atrophy of the scalp are unfavorable features. Quite a large proportion also of cases of the symptomatic form may be cured or arrested by suitable treatment. If due to diseases attended with change of structure, specially of the hair follicles, the piliary growth is not likely to be restored.

TREATMENT.—Physiological methods should be employed to correct any general or local impairment of nutrition. These may relate to diet, habits, etc., and to local care of the scalp. Preventive treatment by any of these is often most satisfactory, and may sometimes postpone for a long time a hereditary tendency. Vigor of the hair is promoted by air and light, hence a covering for the head should only be worn when needed for protection, and then should be as light as practicable and suitably ventilated. The surface of the scalp should be cleansed occasionally as needed by lathering it with any non-irritating soap. *Agnine* soap, made from the fat of lamb's wool, the author prefers to all others. After the scalp has been well rubbed with the lather, using the ends of the fingers, it should be rinsed off with clear water, and then dried with a warm bath towel, by artificial heat, by an open fire, or by sitting in the sun; when dry, the surface of the scalp should be lightly anointed with *sweet almond oil*, or better, with four parts of the latter to one of *lanolin*. The less elegant olive oil or vaseline can be used for the same purpose. It is important that they be applied in small quantity,

just sufficient to replace the natural secretion which has been removed by cleansing. The hair may be straightened into place with a comb, but not brushed until some hours later; the object being to keep the oil upon the scalp and not brush it upon the hair. If needed, the oily application can be employed every few days to keep the scalp from becoming dry. Frequent or unnecessary cleansing of the scalp is to be avoided. Singeing is absolutely contraindicated, and wetting the hair with water should never be practiced. If systematic care of the scalp and other physiological measures, together with the indicated remedy internally, do not arrest premature falling of the hair, local stimulation may be tried. For its stimulating effect *ammonia* may be substituted for soap in cleansing the scalp, in the proportion of one part of liquor ammoniæ to nine parts of water. The subsequent course is the same as after the use of soap. An oil may be combined with a local stimulant to be used in place of the simple oil, as in the following:

R.	Ol. ricini.....	3 1.
	Spr. vini rect.....	3 8.
M.	et add.	
	Tinct. cantharis.....	3 2-5.
	Aquæ rosæ.....	3 2. M.

Either oil of *turpentine*, tinct. of *capsicum*, *nux vomica*, or *jaborandi*, or *pilocarpine*, *resorcin*, *quinine* or *salicylic acid* may replace the cantharis, sometimes with advantage. Cologne or lavender water may be substituted for rose water or other perfume added when desired. *Listerine*, saturated solution of *boracic acid* or *lavender water* may be substituted for the alcohol. Applications compounded with many ingredients are usually to be avoided.

Massage of the scalp should be done by grasping the scalp laterally and then in all other directions, with the hands, so as to move the entire surface at once. This procedure loosens the scalp, increases the circulation and stimulates pilary growth. The same can be accomplished with vibratory massage or with the milder *high frequency currents*, but each patient should manipulate his own scalp, night and morning for two or three minutes regardless of other stimulating treatment. *Faradic* electricity presents no advantages over the high frequency currents, and the results achieved with the latter in the editor's hands far surpass the questionable value of the former.

For symptomatic alopecia the nature and expression of the causal disease will indicate the line of treatment, and the student is referred for details to articles on seborrhœic dermatitis and other local affections named as related to this type. In the absence of active local disease the same methods of attention to the scalp may be called for as mentioned under surface treatment of idiopathic premature alopecia. In addition to remedies adapted to the several causal states, see indications for *Cal. carb.*, *C. phos.*, *Baryta carb.*, *Fluor. acid*, *Helleb.*, *Hypericum*, *Kresot.*, *Kali sulph.*, *Lycop.*, *Merc. viv.*, *Nat. mur.*, *Nit. acid*, *Pet.*, *Phos. acid*, *Sarsap.*, *Selen.*, *Sepia*, *Sulph.*, *Staphisag.*, *Thuja* and *Vinca*.

[illegible][illegible]



ALOPECIA SENILIS

(*Senile baldness.*)

Symmetrical loss of hair occurring after the fortieth year is usually a part of the beginning atrophy incident to age, and often affecting other structures of the skin and organs of the body as well. As years do not measure exactly the structural age of tissues, so the baldness of old age varies widely in the year of its approach. The same causes and conditions which produce premature loss of hair may operate at what is termed the senile period of life in some instances. Usually the loss of hair is limited to the scalp, but it may affect any hairy surface. As a rule it begins at the vertex and spreads forward and backward until the whole crown is affected. It may, however, appear as a general thinning of the hair of the whole crown or it may begin at the brow (more like premature alopecia), and show its advance by the receding forehead. Senile baldness may be, or not, preceded by grayness of the hair. As a rule, the hair on the back and temporal regions of the head is retained, owing probably to the greater thickness of the scalp in these regions, and its more constant exposure to light and air. This is true in some degree as to the whole scalp in women, and accounts for their much greater freedom from baldness at all ages.

ETIOLOGY AND PATHOLOGY.—Any influence which tends to hasten atrophy of the tissues of the body generally, the skin and especially the scalp, may cause senile alopecia. An associated seborrhœa is not uncommon. The *pathological* effect of the beginning atrophy of the skin and subcutaneous tissue is to cripple the vascular supply of the hair follicles, until ultimately, with the cessation of the capillary circulation, their power of production is entirely lost.

The **PROGNOSIS** is only exceptionally hopeful before the atrophic stage. If the affected scalp is thinned and adherent, little can be done to stay the loss of hair. After atrophic baldness of old age, as after loss of teeth and vision, renewal occurs with extreme rarity.

TREATMENT.—In hopeful cases the same measures of treatment and internal remedies may be employed, and on the same indications as for premature alopecia.

ALOPECIA AREATA

(*Alopecia circumscripta; Tinea decalvans; Porrigo decalvans; Area celsi.*)

DEFINITION.—An acute complete circumscribed baldness, occasionally spreading over comparatively large areas, but commonly limited to the scalp, without any apparent change in the skin.

SYMPTOMS.—Alopecia areata occurs suddenly, as a rule, without any local sensations (or sometimes with a moderate itching), in small, roundish spots on an apparently otherwise sound skin. There may be found one or more whitish, smooth spots entirely denuded of hair; they are nearly always dis-

tributed without regularity, but frequently in males they begin about the occipito-parietal regions of the head. The disease in men may affect the beard, or the eyebrows, axillæ, pubes, and even the downy surfaces in either sex. Renewed growth of hair may appear on the bald spots in a short time; they may remain stationary, or most often they increase in size, and then always by peripheral extension. This is a characteristic of the spread in the area of the individual spots in true alopecia areata. Such growth in size may keep to the roundish shape, become oval, or by union with other patches form irregular areas of baldness; occasionally the growth of a patch is principally at one or more sections of the periphery, forming single, or, if multiple, zigzag extensions in several directions. Rarely the disease may spread in a band, like a girdle, around the head just within the hair line. The patches of skin denuded of hair appear polished, thinned, less firm than normal and sometimes slightly depressed. Sensitiveness to irritants is diminished over the affected area to a considerable degree, and, though Neumann declares the spots may be anæsthetic, appreciable loss of tactile sensation must be very rare. At the border of a spreading patch there can be found short hairs, which come out with the slightest traction upon them, and some long hairs near the border can be extracted with ease. The short hairs appear largest at their distal extremities, due to their having broken off near the surface, and the last portion of the hair extruded is reduced in size from lack of nutrition. Occasionally these short hairs may be seen in small number on the central part of the patch. When a patch ceases to spread the short hairs do not appear, and the long hairs are not so easily pulled out. The after course varies widely. In some cases the bald spots become smaller by a growth of hair at the periphery; in the most favorable cases hair may appear all over the patch at once. This new hair is usually fine and lighter colored than the normal hue of the hair, and sometimes it is white. Frequently the downy hair falls out again, to remain absent for a longer or shorter period, before it is renewed, when the color is apt to be a step nearer the normal shade. Shedding of new hair growth may be repeated several times before it becomes permanent. The return of pigment to the hair may be observed sometimes if watched closely; first showing near the scalp as the hair grows out, the distal ends of the hair continuing lighter in color. Occasionally as the hair is restored to one or more patches, others may appear. In persons under forty-five or fifty ultimate recovery is the rule; incomplete recovery is not infrequent, though sometimes only a downy growth ever appears. Rarely the alopecia is permanent, and then chiefly in the latter half of life. Recurrences are quite common and the same spots may be affected a second time. Other portions of the body besides the scalp may be attacked at the same time, and with great rarity the whole hairy surface may be involved.

A comparatively rare form of circumscribed baldness occurs in pea to bean sized patches in which the scalp is left white and resembles scar tissue. There may be one or many spots. In the mildest form the hair about the patches is not loosened, and the patches once formed show little tendency to in-

crease in size, but may multiply in number. Efforts to renew the growth of hair on the spots are not often successful. In a still more rare and severe variety, the spots are markedly depressed below the surface and may show a diminished sensitiveness. While there are no short hairs at the periphery of the patch the long hairs at the border are easily extracted. Evidently the pathological cause is too deep-seated or rapid to permit the growth of hair stumps. New hair is not reproduced. The nails of the hands and feet may become affected by the disease. The latter variety is described by Neumann as *alopecia circumscripta seu orbicularis*. It may have no relation to the mild variety except in the probable neurotic pathogenesis of each.

Another form of local *neurotic* alopecia results from traumatism, or from some functional or organic change in the course of a nerve, such as local injury, neuralgia and neuritis. In this type of alopecia, the patches may be linear or in irregular shapes, and not uniformly round or ovoid as in the primary patches of true alopecia areata. Neither do they regularly spread by the characteristic loosening of hairs at the periphery, as in the latter, and the new growth is more likely to be permanently gray or white.

ETIOLOGY AND PATHOLOGY.—The clinical history giving the onset, mode of extension and changes in the hairs at the periphery of a patch of ordinary alopecia areata leaves little room for doubt as to the parasitic nature of most cases of the disease, but that a number of the cases are neuropathic in origin is indisputable.

The disease is most common in the first half of life and among the poor, though seen in all classes of people. In a large number of cases contagion, while not virulent, stands as a probable cause. Hillier, in his hand-book, mentions the occurrence of the disease in a school of over a thousand pupils, in which it attacked only the girls living in one block; one child was found to have had the disease for some time, while forty-three were suddenly affected. Their ages varied from seven to fourteen years, and the number of spots on each child from one to three. Outbreaks of the disease among the French soldiers have been reported at different times, and ascribed to the common use of the same scissors or clippers in cutting the hair. The proportion affected among some regiments stationed in Paris was said to have been over one per cent. in 1892. Crocker reports the disease as occurring in eight children of one family. The governess of the children had the disease later, and she in turn communicated it to an elder sister by sleeping with her. Eichhoff mentions ten cases among the patrons of one barber. Instances of the disease affecting two or more persons more or less intimately associated together are not rare.

As to the nature of the infecting organism, there is much doubt. Hutchinson and Crocker, of London, believe, as a result of much clinical observation, that true alopecia areata is related to ringworm, while other observers ascribe it to other fungi or to micro-cocci which they have occasionally found. Hutchinson says that ringworm in childhood may result in alopecia areata in adult life. Crocker entertains the view that alopecia areata in adults is

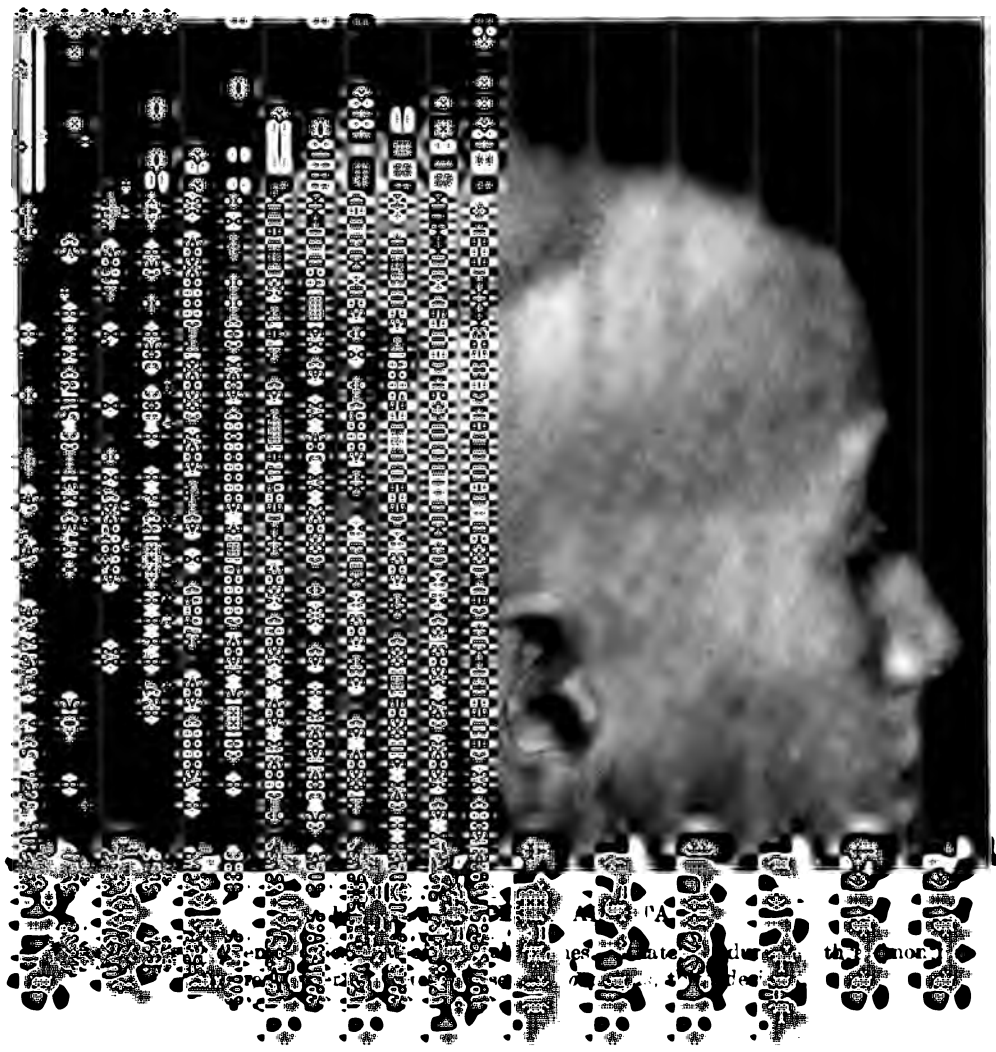
equivalent to tinea trichophytosis in children. Fungi similar to those of ringworm have been occasionally found in cases of alopecia areata, but the evidences of the relation of the two diseases is mainly inferential; an example of the basis for this is the fact that in countries where alopecia areata is most common, so also is ringworm. It is recognized by all that the tinea tonsurans does sometimes produce circumscribed alopecia, but then the etiological cause and pathological result are most evident and the effects of treatment sustain the relation. Sabouraud believes this disease is due to the same microbacillus that he found in acne, comedo and seborrhœa and further considers it a form of seborrhœa oleosa.

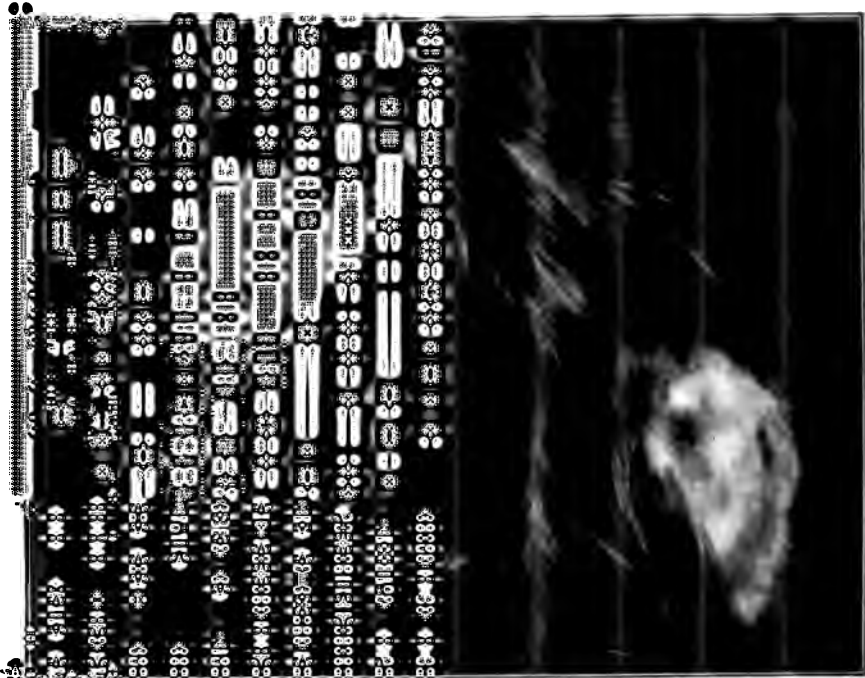
Probably a larger proportion of the cases of alopecia areata seen in this country are of the neurotic type than of the continental cases. Hence it is that some of the American writers, notably Duhring and Bulkley, hold to the view of the neurotic origin. However, some cases undoubtedly are due to tropho-neurotic factors. The generalized or universal form of alopecia is probably of this nature; or it and other varieties may be both neurotic and parasitic in some instances. There are grounds for looking upon nerve disturbance as largely predisposing rather than an essential cause in all except true trophoneuroses.

The *pathological* changes found in alopecia areata are, according to Robinson, due to inflammation in the corium, with round cell infiltration and thickening of the walls of the vessels of the affected part. Consequent interference with the nutrition of the hair results in atrophy of the hair producing structures. He attributes the inflammation to the presence of a micro-organism.

DIAGNOSIS.—Symptomatic forms of limited baldness may be excluded by the history of antecedent disease, such as *favus*, *lupus erythematosus*, *syphilis*, etc. Bearing in mind the usual features of true alopecia areata—the smooth white spots completely denuded of hair, growth by peripheral extension, short, club-shaped hairs at the margin, which, with some adjacent long hairs, are easily extracted—no difficulty will ordinarily be found in distinguishing this disease. Circumscribed alopecia from injury, etc., to nerve branches may have the same surface appearance as the typical form, but the absence of the characteristic hairs at the periphery and the difference in the apparent mode of occurrence and extension suffice to differentiate one form from the other. The small spots of the orbicular variety may always be known by their depression below the surface and the absence of the characteristic hairs at the border. *Ringworm* patches with baldness ordinarily show the presence of scales, and short, twisted hair may be found scattered over the surface. The short hairs or the long hairs at the margin of the patch are not extracted so easily as in alopecia. In doubtful cases the microscope should be employed to search for the fungi of tinea trichophytosis.

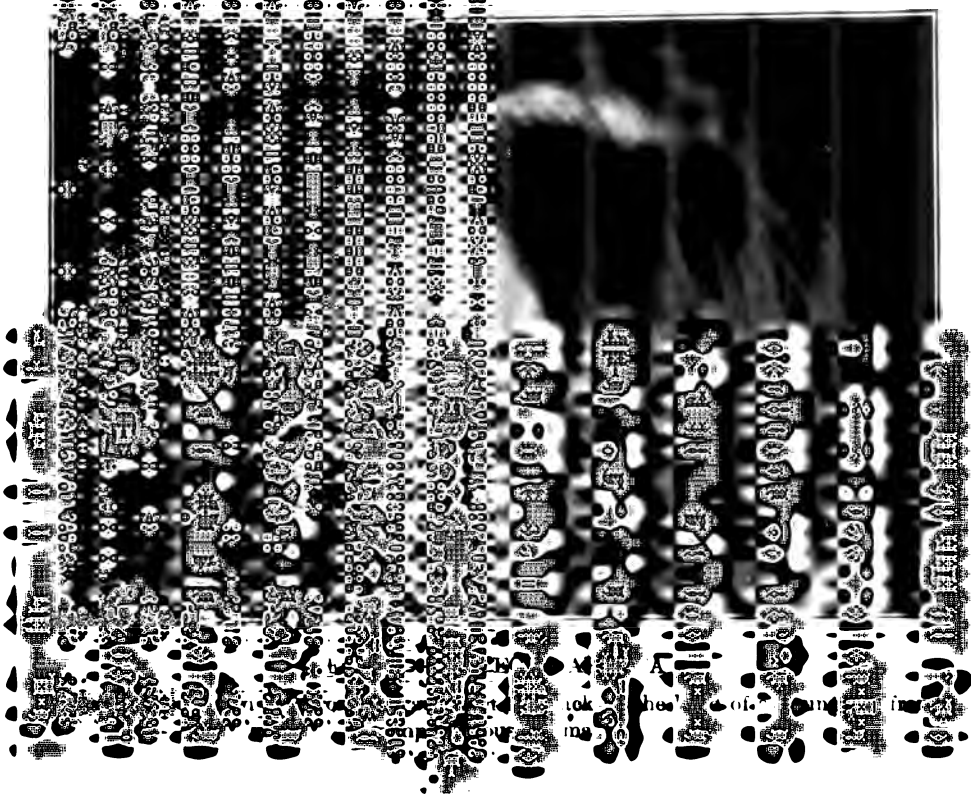
PROGNOSIS.—Most cases of alopecia areata occurring before middle life are likely to recover under proper management. The older the patient, the larger the area involved, and the longer the duration the less chance of recovery. When there has been no visible sign of hair over the affected portion





CIA AREATA

ity of the crown of the head of a young erythematosis.



for a year or more, and the skin has become atrophied, there is little prospect of recovery, though a new growth of hair is possible. In the cases due to nerve disturbance the hair generally grows in again, but it may not regain a normal color. In circumscribed orbicular alopecia no regrowth of hair is to be expected. As to time of recovery in hopeful cases, it may vary from two months to two years.

TREATMENT.—The method of treating alopecia should depend on the essential pathogenesis of each case. If neurotic in nature internal medication will accomplish alone, I believe, all that any treatment can. If, as in a large majority of cases, there is found the clinical signs of a parasitic disease, and it is remembered that pathological histology has shown that in such cases inflammation exists in the inner parts of the skin, the indications are to both give the internal remedy and to employ a penetrating parasiticide locally capable of exciting a mild grade of inflammation. At all events I have found the application of these therapeutic principles to work very well in results.

In the *local treatment* of the ordinary form of alopecia areata thorough cleansing of the affected area, and then of the whole scalp, is the first step. This may be done with tincture of *green soap* made into a lather with water, which, after being thoroughly rubbed into the surface, is then sponged off with tepid water and the scalp quickly dried. Dilute liq. *ammonia* may be substituted for the soap for cleansing purposes, and sometimes *chloroform* or *ether* may be used to cleanse the affected area and surrounding surface, to facilitate the penetration of the germicide to follow. A single thorough application of *carbolic acid* to moderate sized patches, followed in a few days by the persistent application of a one per cent. *ammoniated mercury* ointment daily, has been found beneficial in several cases. *Formalin* one part to fifty to two hundred of water, *lactic acid* and water, equal parts or full strength, and *trikresol* and alcohol, equal parts or full strength, have all given satisfaction; care being taken not to push these caustics to the point of exciting an acute inflammation. The loosened hairs about the margin of the bald patch may be removed by gentle traction with the fingers or forceps, and the parasiticide applied over the patch and a little beyond its border. One of the best applications in the early stage is *iodine* one part to thirty parts of *collodion*, painted on about every four days, or as soon as the preceding application is thrown off. If much irritation is produced, the strength can be reduced, or it can be replaced with a milder antiparasitic in ointment or oil; *salicylic acid* thirty grains to two ounces of castor oil, perfumed with a few drops of oil of rosemary serves this purpose. *Corrosive sublimate* in lotion or ointment may be adapted to some cases. Choice may be made of the following:

R. Hydrarg. bichlor. gr. 2.
Spr. vini rect. ʒ ½.
Aq. cologn. ʒ 2. M.

or,

R. Hydrarg. bichlor. gr. 1.
Lanolin. ʒ ½.
Ol. amagdalæ dulc. ʒ 1. M.

Either of the above may be rubbed onto and about the bald patch twice daily.

In severe or intractable cases *chrysarobin* may be employed:

R. Chrysarobin.....gr. 25.
Vaseline..... $\frac{3}{4}$ l.

M. Sig.—Apply night and morning.

or,

R. Chrysarobin.....gr. 20.
Traumaticine..... $\frac{3}{4}$ l.

M. Sig.—Paint over the affected area every second to fourth day, as needed.

The objections to chrysarobin are its disfiguring stains and its tendency to produce dermatitis. It should, therefore, not be used in conspicuous locations, and never without due caution.

The *Röntgen rays* have cured stubborn cases for the editor when all other means failed; the exposures being at a distance of twelve inches, for four to ten minutes about every four days. *Radium* in the activities now obtainable presents no advantages over the X-rays. *Phototherapy* as recommended by Finsen and others has been used with favorable results by a number of authorities. The treatment is tedious, especially if there be many areas. The patient should be exposed for twenty minutes to an hour every second or third day. The fact that hypertrichosis has developed upon arms of those attendants exposed to the rays may be considered encouraging. As a routine measure, the editor applies the Oudin or Piffard type of *high frequency currents* to all cases of alopecia areata, twice weekly when possible for one to three minutes. *Faradic* and *galvanic* electricity are seldom used in this disease at the present time.

If there is any departure from the standard of general health, physiological methods should be employed to restore nutrition or tone. Each case must decide the choice of means in this line of therapeutics, as it must also in the selection of a drug for internal use. See indications for *Cal. phos.*, *Fluoric acid*, *Phos.*, and *Vinca minor*.

FOLLICULITIS DECALVANS

(*Acne decalvans*; *Folliculite épilante*, etc.)

So many clinical forms of inflammation of the follicles or peri-follicular tissue resulting in cicatricial alopecia have been described and named in recent years that there is much confusion as to the actual clinical limits of this rare disease. Thus at one extreme there is no positive sign of inflammation; at the other, considerable pustulation. The one constant feature is the termination in apparent or real scar tissue, and nearly always permanent loss of hair in the affected area. The same pathological results follow other diseases which have more marked clinical features in other respects, and are differently classed. Probably all forms of this disease are of parasitic origin.

The mild form resembles alopecia areata. It occurs in patches not usually

exceeding a silver quarter in size. The surface affected may be pinkish in color, and about the hair of an affected follicle there may be found a pin-head deeper redness. The hairs can be easily removed, but are not swollen, twisted or broken. Left alone, they fall out spontaneously, the redness subsides and is succeeded by atrophy and a depressed scar. The patches spread in an irregular way; they may be grouped or several distinct patches may be found on different parts. A few follicles in the diseased area may escape leaving normal hairs; or the baldness may be complete with an ivory-like look of the surface, which is frequently depressed.

This form may be *diagnosed* from alopecia areata by the lesions about the hairs, the slight diffused redness of the surface, and by an absence of the short, club-shaped hairs at the periphery usually found in the latter disease.

In another form, *folliculite épilante of Quinquaud*, the loss of hair in spots is usually first noticed. On inspection, small pustules are found perforated by hairs, which are easily removed or later fall out spontaneously. In place of the pustules there may be sometimes seen papular-like follicular elevations, and sometimes crusts covering a secreting base. The lesions appear in crops, isolated, and few in number. After the hair falls out, the follicle and other parts of the skin undergo pathological change resulting in cicatricial tissue formation, and permanent alopecia in irregular circular patches about one inch in diameter, more or less depressed and scattered over the scalp. The disease may occur very rarely on the bearded part of the face, axilla or pubes. Two cases under my observation were both situated on the scalp; one showed a predominance of pustular lesions, the other of papular.

Several minor and still rarer forms of cicatricial alopecia have been described chiefly from the original reports of Besnier. Their extreme rarity, and the uncertainty as to the alopecia being due to a folliculitis, or if so, that they may be variations from the more common types, does not warrant more extended notice of them here.

The pustular form of folliculitis decalvans may be readily *diagnosed* by recalling its clinical characteristics. It might be confounded with sycosis, or a pustular syphilide. Coccogenous *sycosis* is known by the location on the bearded portions of the face, its nodules, larger pustules and signs of infiltration of the skin, with less tendency to produce alopecia. A *pustular syphilide* may be recognized by the ulcer underneath the dried pus, the distinct and elevated rim of the ulcer, and other obtainable evidences of syphilis.

TREATMENT.—The same methods of treatment as are indicated for the parasitic type of alopecia areata may apply to folliculitis decalvans. Absolute cleanliness of the whole scalp, followed by daily painting on and about the patches of tincture of *iodine*, for two days or longer as advised by Quinquaud, may be effective. Baldness due to the severe form cannot be relieved. *Graphites* and *Kali bromatum* should be studied as remedies.

DERMATITIS PAPILLARIS CAPILLITII

(*Sycosis capillitii*; *Sycosis frambæsia*; *Acne keloid*, etc.)

Under this name Kaposi first described an anomalous form of disease in 1869, and briefly mentions it in the last edition of his work on Diseases of the Skin in 1895, in the part of a chapter headed "Sycosis," though he says he has proved it does not begin as follicular pustules, and, therefore, it is not a sycosis.

Its place in a pathological classification is not conclusive, although it has been classed as a form of folliculitis decalvans.

According to Kaposi, the disease begins with pin-head, isolated papules at the border of the hair at the back of the neck. Subsequently the papules become aggregated, coalesce and form keloid-like, firm, projecting, pale or red masses. Some are entirely bald, on others there remains twisted and matted hair which cannot be extracted with ease, or breaks off in the attempt. Small scattered pustules may be seen here and there. If the growths are incised, the knife makes a creaking sound and the exposed surface bleeds from many points. Commonly the disease spreads up to the vertex and may be limited to that location. As the disease extends up the occiput, fungating, frambæsi-form vegetations appear, from between which a very offensive secretion is discharged; they become crusted over and the occurrence of multiple abscess at different points undermines and in some degree destroys them. Finally after years they degenerate into sclerotic tissue with resulting destruction of the hair follicles and baldness, with sometimes tufts of hair left in places. These excrescences are due to papillary growths, histologically of the same nature as granulations, and it is believed they are not always due to the same kind of preceding lesion. Crocker mentions a case as following a probable outbreak of furuncles.

The cause of the disease is not known, but it owes its special form to its anatomical location.

A DIAGNOSIS can only be made by a knowledge of the full history of a case, showing the features already mentioned. If its peculiar secondary developments follow as a sequel of other primary lesions, a differentiation must be established between diseases exhibiting a somewhat similar efflorescence. The PROGNOSIS is said to be good as to the general health, but the disease is intractable to treatment and liable to recur; the alopecia is permanent.

TREATMENT.—Strict antiseptic cleanliness, a healthy environment, some tissue remedy, such as *fluoric acid* or its salts or *calcareo sulp.*, would seem indicated. *Linear scarification*, *electrolysis* and *excision*, have all been commended, but the recent successful use of the *Röntgen rays* in arresting the active process and causing a partial disappearance of the lesions of this disease, would point to this last method of treatment as being the most promising.

CONGLOMERATE SUPPURATIVE PERIFOLLICULITIS

Under this name have been described several suppurative follicular affections of the skin, having a certain resemblance, but not beyond a doubt of the same nature.

In ordinary type it is an acute affection running its course in a few weeks, ending without fixed tissue change of the skin, or at most slight scarring. This form commences as a round or oval patch of moderately elevated skin, one-half to two inches in diameter, of a reddish-purple or bluish color. The surface may be partly crusted over or nearly smooth; a number of very minute to pin-head sized openings appear on the surface and a larger number of whitish-yellow dots indicate the sites of other orifices in process of forming. From the small openings pus can be pressed out.

In a more pronounced form, there may be a resemblance to carbuncle, with moderate fluctuation, but there is an absence of constitutional symptoms, no involvement of the lymphatic glands, and locally no necrotic core forms. The hairs, if present, appear healthy though easily removed.

The lesion is usually single, rarely multiple; and most often appears upon the back of the hands and on the buttocks, but may occur on other parts. The skin of the patch may remain discolored, of a brownish hue, for some time after other signs of the disease have gone away.

It would appear from descriptions of the disease that either of the above forms may assume the characteristics of other coccogenous dermatoses. Thus sycoisiform, carbuncular, or phlegmonous features may develop, and thereby change the course, if not the nature of the diseased process, which may then be obstinate and protracted under treatment. Papillomatous growths on the surface of the patch are said to be a rare departure from the usual appearance.

The ETIOLOGY points to contagion. Quinquaud believes the active cause to be the staphylococcus pyogenes albus. Those who work among animals, especially horses, seem to be especially fit subjects for this disease. PATHOLOGICALLY the process is a suppurative perifolliculitis of both the hair follicles and the sebaceous glands; probably limited in most cases to those parts, occasionally involving other structures and assuming a likeness to other diseases.

The PROGNOSIS is good under suitable management, and TREATMENT consists of cleanliness, dressing the diseased surface with a mild antiseptic ointment of *boric* or *salicylic acid*, or lotions of *formalin* one per cent. in water, *creolin* two per cent. in glycerine, or ten per cent. of *succus calendula* in glycerine, and the administration of a remedy to control suppuration. See indications for *Calcareo sulph.*, *Kali brom.* and *Petroleum*.

D. DISEASES OF THE NAILS

ONYCHAUXIS

(Hypertrophy of the nail.)

Onychauxis or hypertrophy of the nail is an excessive formation of the substance of individual nails, whether this be manifested in an increase in the thickness of the corneous tissue, or an abnormal growth in any of its diameters. In the first form the unusual aggregation of nail-cells results in a hard, thick, opaque, misshapen nail, its surface glossy and grayish-white in color, and curved particularly at the free border, upward or downward. In the second variety, the deformity may be from lateral or longitudinal growth. The lateral hypertrophy produces the condition known as *ingrowing nail*, chiefly observed in the toes. The down-curving border often buries itself deeply in the adjacent tissue, causing an extreme sensitiveness of the soft parts, even proceeding to suppuration and the production of exuberant granulations. Such inflammation of the soft tissues and sometimes extending to the bone is termed *paronychia* (whitlow). This condition is often aggravated by undue lateral pressure from the shoe on the soft parts.

Longitudinal increase may occur to an extent of several inches, and is usually associated with a downward bend, presenting all varieties of appearance between a claw-like curve and a ram's horn spiral twist. This distortion is termed *onychogryphosis* (curved nail). Such nails are dirty yellow, brownish or grayish in color, and ribbed or striated longitudinally or transversely. Their under surfaces are brownish, flaky, and marked by depressions between well-defined ridges. The effect of these conditions upon the hands, where they are fortunately rarely found, is not only disfigurement, but the sense of touch is diminished or destroyed, and capacity for fine work suffers. In the toes this deformity may render walking difficult, or even impossible. Lateral onychauxis may produce ingrowing nail or even lateral paronychia.

ETIOLOGY.—Onychauxis may be congenital or acquired. If the former, the nail is relatively but slightly larger at birth, but continues later to grow with disproportionate rapidity. This is particularly found associated with ichthyosis, papillary enlargement, or congenital syphilis. Acquired onychauxis, either idiopathic or symptomatic, is far more common. Trauma, from the constant pressure of ill-fitting shoes, causes increased blood supply, and consequent hyperplasia. Unrestrained growth, as in the aged and bedridden by neglect, or in the Chinese by cultivation, is often connected as a cause, with lack of cleanliness, where the accumulation produces hyperplasia by its mechanical presence. The nail and matrix may be involved in the spread of some chronic inflammatory process of the skin, as psoriasis, chronic eczema, lichen ruber, elephantiasis, leprosy and tuberculosis. Said diseases, however, will not cause onychauxis unless predisposition to it exists; for frequently the nail is not involved at all, or even atrophy may occur. Symptomatically, onychauxis

is seen in degenerative or irritative neuropathic affections, particularly in spontaneous neuritis, neuralgia, chronic myelitis, syringomyelia, etc. It is also found after certain chronic bone diseases. Partial hypertrophy follows ulcer of a portion of the nail bed, resulting from efforts of the intact matrix to compensate for the deficient function of the ulcerated portion.

PROGNOSIS.—This depends upon the curability of the antecedent general disease. If the morbid influence, be it inflammatory or mechanical, can be removed before the matrix is irrevocably degenerated, improvement or cure may be expected. Congenital disease of the nails calls for a guarded prognosis, while in lepra or elephantiasis, or extreme traumatism, the condition of the nail is often hopeless.

TREATMENT.—This should be directed toward the removal of the cause or the antecedent disease, and where the nail condition is the result of any particular disease, the treatment is the same as called for by the general condition. If a condition of ingrowing nail exists, or inflammatory changes resulting therefrom are found, treatment must first deal with that. In aggravated cases, with much hypertrophy of the soft parts, I have removed, under anæsthesia, a considerable portion of the latter with one cut of the knife. The wound was allowed to heal by cicatrization, which by contraction entirely freed the nail and gave a permanent good result. Less radical treatment will often suffice, such as softening by soaking in hot alkaline solutions, and then scraping the nail thin in the centre, destroying (under cocaine) the granulations with nitric acid or nitrate of silver, followed by inserting lint or prepared sponge between the edge of the nail and the skin, kept in place by a band of adhesive plaster. This treatment can be repeated every two or three days, as required. Uncomplicated with ingrowing nail and cases tending to chronicity *oleate of tin*, ten grains to the ounce of cold cream, *salicylic acid*, thirty grains to the ounce of *lanolin* ointment, well rubbed into and about the nail, may be beneficial. Avoidance of water is frequently imperative in these conditions, and under no circumstances should the use of rubber or leather cots or gloves be advised, since the nail substance may be destroyed by their use.

Remedies indicated by any general departure from health, or local conditions, should be given. See *Graphites*, *Hypericum* and *Sulphur*.

Pterygium (Overgrowth of Nail fold) is the abnormal downward growth of the fold of skin that covers the proximal end of the nail, hiding the lunula. Its treatment consists in freeing it from the nail, and pushing it back or clipping it off. *Osmium* is a possible internal remedy.

ONYCHOMYCOSIS

(*Fungus growth in the nail.*)

Onychomycosis is a morbid process in the nails due to the growth of a vegetable parasite in the nail substance.

ETIOLOGY.—Usually occurring by direct spread from affected skin in the neighborhood, or more rarely by auto-infection from any part of the body

accessible to the fingers, a positive case of primary onychomycosis cannot be proved. Even when no trace of the mycosis can be found elsewhere it is impossible to be sure that it has not existed and disappeared before the change in the nail attracted attention. Only two known fungi have been discovered in the nail, those of *favus* and *trychophytosis*; more frequently the latter, though it is rarely found in the toe-nails. The clinical pictures are similar, the microscope being necessary for differential diagnosis.

SYMPTOMS.—Soon after the invasion by the parasite, the nail becomes brittle and frayed out, its surface furrowed, its substance opaque and yellowish or grayish-white, while it is lifted up in bulk by an accumulation of epidermis beneath it. In succession the other evidences of hypertrophy appear, the nail becomes thickened, distorted, gryphotic, its surface exfoliated and of a pale dirty yellow color. In rare cases due to *favus* there are seen the sulphur-yellow or scutate depressions peculiar to that disease.

DIAGNOSIS.—Great caution is necessary in the diagnosis of parasitic disease of the nails, for the clinical symptoms resemble very closely several other affections, particularly psoriasis, chronic eczema, etc. The discovery of the fungus with the microscope is the only certain test. Rarely more than one or several nails are affected by parasitic invasion, whereas in the other diseases mentioned, all of the finger, and even the toe-nails may be involved. But failure to find the fungus does not exclude its existence, while the presence of fungoid lesions on other parts of the body strongly indicates the nature of the disease of the nail. Sabouraud claims that the only variety of the trichophyton fungus found in the nails is the ectothrix. Either this or the *favus* fungus can usually be readily demonstrated by subjecting scrapings from the affected nail to liquor potassæ, where, after softening, the parasite can be seen with a microscopic power of 400 to 500 diameters.

The **TREATMENT** is the same as for the like parasitic affections of the skin combined with mechanical removal by scraping or cutting of accessible portions of the affected nail. The *Röntgen rays* have been of service in the treatment of obstinate cases of parasitic nail disease.

ATROPHIA UNGUIS

Atrophy of the nails (onychatrophia) may be congenital or acquired. If the former, it is usually found upon fingers or toes congenitally deformed, and is associated with defective growth of hair. *Anonychia*, absence of the nail, sometimes occurs in similar cases. When the digits are distorted or coalesced the nails are apt to be malformed as well. Acquired atrophy, more common, may affect all or a part of the nail, and results from local or constitutional causes.

ETIOLOGY.—Traumatism in the toes from ill-fitting shoes, and in the fingers from hard manual labor as well as accidental blows or pinches, may produce atrophy instead of hypertrophy. It depends upon whether the vio-

lence hinders the activity of the matrix by removing the nail wholly or partially from it, or enhances it by causing congestion. Extreme heat or cold, and constant handling of the chemicals, have an injurious effect upon the growth of the nails. Inflammation or ulceration of the matrix will stop permanently or temporarily nail formation. All prolonged fevers and chronic wasting diseases of the entire system, such as typhoid fever and tuberculosis, are constitutional causes of atrophica unguis, acting by disturbing nutrition. Others are nervous affections, such as ataxia, and cutaneous diseases, like ichthyosis, which may be followed by either atrophy or hypertrophy.

SYMPTOMS.—The atrophic nail in appearance is grayish-white and lustreless, either uniformly or in stripes or specks. It is smaller and thinner than normal, and its substance is soft and delicate like a thickened membrane. It is often rough and irregular from longitudinal exfoliation or fractures or else granular erosion gives it a "worm-eaten" appearance.

Atrophy of the nail may show in some manner distinct enough to be entitled to a special designation:

Spoon nails is the descriptive title given by Crocker to a condition of the nails found associated with wasting diseases though also in some cases from an undiscoverable cause. The substance is thinned and the surface concave from side to side. Everted edges and an occasional antero-posterior concavity, complete the resemblance to the bowl of a spoon. The disease spreads gradually from one nail to others on the fingers, but is never found on the toes.

Reedy nails describes the striated appearance due to the prominence of the normal longitudinal marking, occurring upon atrophy or wasting of the intermediate substance. Though attributed by Fothergill to gout, it has been so often observed in aged persons with no other symptoms of gout that Crocker regards it as a change of senility.

White Nails or Leucopathia Unguium is the frequently observed condition of the presence, in nails otherwise healthy, of spots or transverse bands of a dead white color. The macules or bands are observed to appear at the lunula and grow forward until finally cut off. They generally point to some local or constitutional condition which temporarily operated adversely upon the formation of the nails. They are sometimes noticed during convalescence from fever, or in paralysis. Some attribute the appearance to the presence of air in the nail substance. Others believe that it is a trophoneurosis causing nutrition changes in the nail matrix.

DIAGNOSIS of atrophic changes in the nail is easily made by the appearance found, but it is not so easy to ascertain the true nature (origin) of the disease unless some evidences of a related disease, diathesis, etc., is found elsewhere.

TREATMENT should be adapted to the causal disease and the improvement of local and general nutrition. Among remedies acting upon the nail structures see *Helleb. nig.*, *Hypericum*, *Kali sulph.*, *Mer. viv.*, *Silicea*, *Spigelia* and *Thuja*.

ONYCHIA

(Inflammation involving the nail.)

Onychia or onychitis is either acute or chronic inflammation of the matrix of the nail. Its most important forms are the syphilitic, malignant and formalin types. Occasionally it is idiopathic.

Syphilitic onychia may involve several, but usually only one nail. Gummatous infiltration of the peripheral soft parts, or development of the bullous syphiloderm beneath or near the nail, threaten seriously its integrity, and lead to ulceration with a foul discharge.

Onychia maligna usually results from a traumatism in a patient of the strumous diathesis or with some grave chronic disease. Beginning as a simple inflammation it soon becomes phlegmonous. The nail is lifted from its bed by the exudation underneath of a sero-sanguineous fluid. The nail becomes thickened (onychauxis), opaque and discolored, and is often separated when gangrenous; an easily bleeding surface is uncovered, which may slowly heal and produce an imperfect nail; or the inflammation may extend to the neighboring parts, producing true paronychia with often involvement of the bone. Sometimes the condition becomes chronic.

As the direct result of increasing use of formalin in science and the arts, a particular form of onychia (*formalin onychia*) associated with a dermatitis must be noted. These cases result from the continued use of 4 to 10 per cent. solutions of formalin, and are most obstinate in their response to treatment.

The DIAGNOSIS may be established by the signs of the primary disease which predisposed to it, or history of injury and evidences of inflammation or its resultant effects.

In the TREATMENT of severe onychitis incisions or removal of the nail may be necessary to relieve tension, maintain cleanliness and permit the direct application of an antiseptic dressing. A twenty-five to fifty per cent. *ichthyol* ointment or one composed of two to ten per cent. of *salicylic acid* may be used for continuous application. Internal remedies indicated for the original disorder, or for the local conditions when idiopathic, should be chosen. Besides remedies adapted to syphilitic cases, see *Cocculus*, *Fluor. acid*, *Graph.*, *Hepar sulph.*, *Kali mur.*, *Lycopod.*, *Nat. mur.*, *N. sulph.*, *Phos. acid*, *Sarsaparilla*, *Silicea* and *Sulphur*.

CLASS II.—IDIOPATHIC AFFECTIONS

LENTIGO

(*Freckles; Ephelides.*)

DEFINITION.—Multiple circumscribed macular pigmentation of the skin, commonly occurring in pin-head to pea-sized spots on the face and hands.

SYMPTOMS.—Freckles may be rarely congenital, but are nearly always acquired in the second decade of life, and appear as yellowish-brown or blackish spots in few or large number. They are most often limited to the parts of the skin exposed to sunlight, as the face, neck, back of hands and forearms; about the face they are apt to be more numerous on the temples and cheeks. Less frequently freckles appear on the arms, back, buttocks and genital regions of both sexes. They generally make their first appearance in summer, suddenly or slowly, while with the onset of winter they fade partially or wholly away, to become more conspicuous again with the return of warm weather. Pigmentations of this nature which are uninfluenced by seasons, whether limited to the exposed or on the covered parts as well, are known as "cold freckles." Usually freckles are symmetrically distributed, very rarely they may be asymmetrical; occasionally they are symptomatic, and may develop progressively into large plaques without losing their pathological character. Lentigo-like pigmentation may be secondary to other changes in the skin, as in the atrophic form of xeroderma pigmentosum, in the cutaneous atrophy of old age, and in senile eczema.

ETIOLOGY AND PATHOLOGY.—Exposures to the direct solar rays of heat and light or to warm moist conditions of air are the ordinary causes of lentigo. Light complexioned people, especially those with red hair, are most subject to freckles, but they are not unusual in brunettes or even in the colored races. Symptomatic forms may be caused by conditions leading to errors of nutrition. Freckles are due to an excessive deposit of pigment in circumscribed areas of the mucous layer of the epidermis, not extending into the corium as in pigmentary nevi.

DIAGNOSIS.—The distinguishing points of ordinary freckles are their location on the exposed surfaces of the skin, their aggravation in summer and amelioration in winter, and occurrence in multiple, circumscribed spots, first appearing between the eighth and twentieth year.

For TREATMENT see chloasma.

CHLOASMA

(*Liver spots; Moth patches.*)

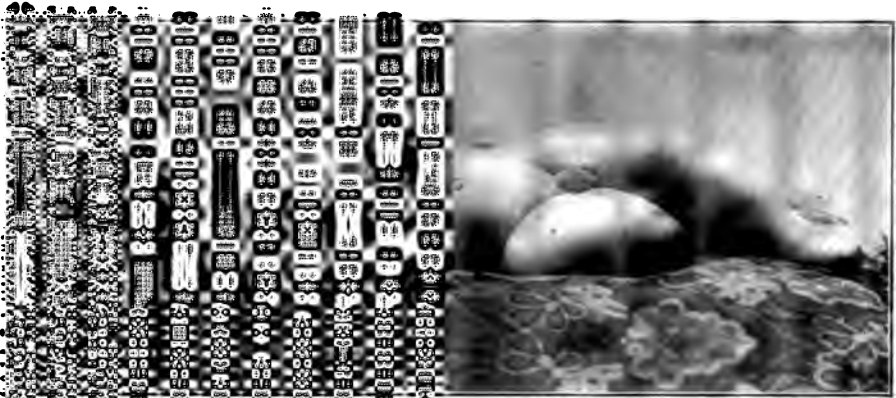
DEFINITION.—A single or multiple, circumscribed or diffuse staining of the skin, of a yellowish-brown or blackish color.

SYMPTOMS.—Circumscribed patches of chloasma are usually well defined and vary in shape and size; the diffused patches are less sharply defined; both forms are commonly yellowish-brown in tint, but may be of a dark brown or black, known as *melanoderma*. In the generalized form, the relatively deeper colored parts of the skin, as the axillæ, genitals, nipples, etc., seem most affected. There are no subjective sensations.

ETIOLOGY AND PATHOLOGY.—The pathogenesis of chloasma varies in its inception. In the *idiopathic* form numerous sources of local irritation or inflammation may cause it, *chloasma traumaticum*. Thus it may follow artificial vesicants, or rubifacients, such as mustard and other forms of poultice applications (*chloasma toxicum*). Long-continued pressure upon the skin, or repeated frictions may lead to pigmentation. Excoriation from scratching in pruritic and parasitic skin diseases or conditions of long standing at all ages may frequently cause pigmentary deposits, *pityriasis nigra*. Similar discolorations of the surface of persons subject to irritations and scratching from uncleanness, known as “vagabond’s disease,” are observed in tramps, paupers, persons of unsound mind, etc. Exposures to unusual, repeated or prolonged heat or cold may result in staining, *chloasma caloricum*. This is seen on the legs of stokers, the face and neck of firemen, foundrymen, etc. In this group, pigmentation from the erythema, produced by the X-rays, should be mentioned. Even the covered parts may participate in the deeper color-pigmentation, and it is said the vigorous are most liable to experience these effects. Severe cold may produce a secondary local hyperæmia of a nature to cause deposits of coloring matter from the blood.

Symptomatic chloasma may follow certain skin affections independent of pruritus, or from pathological changes of the internal organs, tissues or fluids of the body. Pigmentations are incident to the skin lesions of syphilis, leprosy and lichen planus, and are often of long duration. They may follow exudative erythemas, acne, etc.; then they may be marked, but are usually not persistent. In dependent locations, as between the knee and ankle, almost any congestion or inflammation may cause staining of the surface. Here the influence of gravity tells upon the otherwise disabled blood-vessels. Less constant and marked are the concomitant colorations sometimes observed in senile atrophy of the skin, in fibroma, about patches of leucoderma, and rarely in psoriasis and pityriasis rubra.

Excessive pigmentation of the skin may be a symptom of diseases of the spleen, liver, suprarenal capsules, cancer, changes in the blood, thus producing cachectic states. Of these cachectic chloasmas, examples of a general bronzing of the skin are seen in Addison’s disease, and the peculiar sallowness in cancer;



CHLOASMA

(VIEW.)



CHLOASMA

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CHLOASMA

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diffused or circumscribed patches on the face or body in marked or prolonged cases of malaria, Graves's disease, abdominal tuberculosis, and sometimes in the advanced stage of hepatic cirrhosis.

Chloasma uterinum is a term used to designate staining of the skin, due to some known or supposed affection of the womb or its appendages. It is seen in women between puberty and the menopause, most often during pregnancy (*chloasma gravidarum*), after multiple pregnancies, in the sterile, or in single women in middle life. It is more common on the forehead and temples, and it may form a symmetrical mask-like shape over the face, or appear in smaller freckle-like irregular spots here and there. It is not uncommon on the neck, the nipples and over the central line of the abdomen, while it may appear on any part of the body. The shade of coloration is frequently like the stains of jaundice, hence the term "liver spots"; the hue may be a rusty or even a blackish-brown in exceptional cases. Sometimes the color will vary in the same person under different external or internal influences. Chronic constipation alone or associated with other disturbances of excretion is sometimes a factor in the production of chloasma. The author has seen two cases in which no other cause was apparent.

Pigmentations which are congenital are usually secondary to interuterine conditions, or possibly are caused by pre-natal influences. The editor has seen five cases of extensive pigmentation which were congenital, one involving the entire right side of the body, excluding the head, and another forming a wide band about the waist, posteriorly, but not anteriorly. Both of these gave undoubted histories of pre-natal influences, but because of the poor prognosis, it was impossible to keep them under observation.

PATHOLOGY.—The origin of pigment in the skin is still unknown, since it cannot be determined whether migratory pigment-carrying cells cause the pigmentation of the skin, or whether the pigment granules themselves migrate. However, the direct cause is an excess of pigment deposit (*melanin* or *hemosiderin*), in the rete mucosum, and in the cases symptomatic of some grave disease the deposit may penetrate into the upper layers of the corium. Sometimes the papillary vessels have been found dilated, and about the latter wandering cells overloaded with pigment. Excessive blood supply in the skin, excess of pigment production, distant or local, or sympathetic nerve influence, one or more would seem to be essential to the pathology of chloasma.

DIAGNOSIS.—Chloasma is recognized with ease as a rule: From *erythemas* of congestion or inflammation, by the reddish color of the latter and their disappearance on pressure; from fungus discolorations of the skin, as in *tinea versicolor* and *erythrasma*, which may be very like in hue, by the usual difference of location, signs of fine desquamation, by microscopic evidence of the presence of the characteristic fungi, and, in case of doubt, by the nearly immediate effects of suitable antiparasitic treatment on the latter diseases. Accidental or voluntary stains of the skin and the discolorations of *chromidrosis*, if suspected, can easily be removed by washing with soap and water or some suitable chemical. A patch of *leucoderma* with apparent increase of pigment

at the border may be known by the total or partial absence of normal pigment on some portion of the patch.

PROGNOSIS.—Generally this must be guarded, though there is always hope of relief in cases in which the cause is known and can be removed. When secondary to other lesions of the skin recovery may be nearly always expected.

TREATMENT.—Causal treatment should always be instituted when possible, to remove or neutralize causes yet present, or to antidote antecedent factors. To this end it may be necessary to review the whole etiological field. The ordinary causes of lentigo are well known but difficult to avoid; something can be done for women in this direction by protection of the exposed part; men do not apply for treatment. Constipation should receive attention by physiological methods and indicated drugs. Affections of the liver, uterus and appendages, other local internal diseases and constitutional states may demand treatment which cannot be detailed here, more than to give a few indications for remedies on a later page. Though a dermatologist is sought usually to give relief for the cosmetic blemish, he can only do this in many cases by attention to the whole pathogenesis, whether local or constitutional. It is not difficult to remove the epidermis and with it the pigment deposit, but without an elimination first of the influence which provoked the abnormal deposit it is likely to return. Even under favorable conditions of health local treatment is far from satisfactory, and should only be employed after physiological and internal pathogenetic means have failed.

A host of external applications have been recommended for the removal of freckles and chloasmata. Some of the best are as follows:

R. Corrosive sublimate..... gr. 6.
 Distilled water..... ℥ 6.
 Spirits camphor,
 Rose water..... aa ℥ ½. M.

This may be applied to the pigmented skin two to four times a day, or if a more decided effect is needed, three folds of linen cloth, cut to fit the lesions, may be wet with it, applied at night and allowed to remain until dry. Which-ever way employed, when the skin becomes red and begins to flake off, the *sublimate solution* should be discontinued and a mild *salicylic acid* ointment used to promote exfoliation as long as needed.

R. Salicylic acid..... gr. 25.
 Simp. cerate..... ℥ 1.
 Ol. amagdal dulc..... 5 1.
 M. Sig.—Apply externally once or twice daily.

To hide the redness of the surface during the day, a powder composed of equal parts of *carbonate of magnesia* and *talcum* can be dusted on the skin, if desired. The treatment can be repeated, beginning with the sublimate solution when required, or the ointment long continued may be found sufficient to prevent a return of the pigmentation. The *ammoniated mercury* may

be employed for limited pigmentation in the combination as given below, applied nightly or every other night:

- R. Hydrarg. ammon.,
 Bismuth magister.....aa 3 1.
 Adipis recentis.....3 1.
 M. Sig.—For external use.

Or, *chloride of bismuth* may be tried with baryta:

- R. Bismuthi chlor. precip.....3 1.
 Baryt. sulph. precip.....3 4.
 Simple cerate,
 Glycerine (pure).....aa 3 1½.
 M. Sig.—Use externally once daily or less frequently.

Probably the bichloride of mercury is the most reliable application. In obstinate cases it may be used cautiously in stronger solutions than given above; in the proportion of two to four grains to the ounce of either cologne, tincture of benzoin, tincture of Tolu balsam or dilute alcohol. *Peroxide of hydrogen* may be applied a few times followed by a salicylic acid ointment or collodion. *Alcohol* (95%) and *tincture of benzoin*, equal parts, applied daily until desquamation results, is sometimes effective. All applications for the removal of pigment should be used with care, lest they excite too much inflammation of the skin and defeat the object desired. *Electrolysis* may be used in the removal of small areas of pigmentation.

For internal medication see indications for *Cadmium sulph.*, *Cal. phos.*, *Lycop.*, *Phos.*, *Nat. ars.*, *Nit. acid*, *Sepia* and *Sulphur*.

There are a number of discolorations of the skin which instead of being the result of excess deposits of coloring matters normally present in the skin, are due to the introduction into the integument of coloring substances from other organs, or from without. Thus **picric acid**, **arsenic**, **toxic gases**, **chrysa-robin**, etc., cause temporary staining. The bile in **icterus** colors the skin almost any shade of yellow.

Argyria is a form of discoloration of the skin from the too free ingestion of silver salts internally, or in workers in silver manufactories, from the penetration of the epidermis by minute particles of the metal. The mucous membranes, as the conjunctiva, gums, etc., may be discolored also. The author has a patient who has worked on metallic silver for twenty years and has a nearly universal light slate color of the skin. The deposit may not affect the general health, and no method of removal is known, although a change of occupation will always benefit and may materially aid in relieving the condition. Kali iodide in material doses has been reported as curing two cases.

Tattooing with needles moistened with some indelible colored substance and made to penetrate into the corium produces a permanent discoloration. This artificial pigmentation is quite often seen on the hands, arms or other parts of the skin, of various designs or shapes dictated by fancy, and sometimes

considerable in extent. Of like appearance and nature are the stains left by *grains of gunpowder* imbedded in the skin by explosions.

TREATMENT of these cases heretofore has been by *electrolysis*, *cutaneous trephine* and *excision* and for the most part has been found unsatisfactory; more recently tattooing the patches with *glycerol of papoid* has been reported as effective in removing both the stains from pigment tattooing and from gunpowder explosions. The use of *caroid* as a solvent in place of papoid has been recommended. Before using either of these preparations the surface should be rendered aseptic and surgical cleanliness adhered to throughout.

ERYTHEMA

Strictly speaking, this term implies the existence of a hyperæmic redness of the skin, which may be made to momentarily disappear on pressure (*erythema simplex*). Clinically it includes degrees of redness which in some part have gone beyond the stage of hyperæmia and entered on a stage of inflammation, *i.e.*, exudation. These latter types are included under the *erythema exudativum*, and include erythema multiforme, iris and nodosum. There need be no confusion therefore, from the rather wide use of these terms, especially in view of the fact that the line between congestion and inflammation cannot be a fixed one in a clinical sense. For clinical convenience also, some erythemas, having no relationship in pathogenesis, are grouped together.

ERYTHEMA SIMPLEX

Simple forms of hyperæmic redness of the skin due to vascular dilatation from some disturbance of the vasomotor nerves, are included under this head. They arise from different causes, and may be little more than physiological, or they may be pronounced and have a resemblance to severer types of disease. The areas of redness vary in shape, location and extent with the causes which produce them.

Erythema neonatorum.—The diffused, often universal redness of the skin beginning soon after birth is frequently due to friction from washing, rubbing, or the clothing of the new born. It reaches its height in about three days and disappears by the end of a week. There is no desquamation, but not infrequently a change from the red to a yellowish tinge of the skin is seen, and occasionally hemorrhagic points appear.

It may be DIAGNOSED by the occurrence in the first week of life, universal distribution and absence of any systemic disturbance.

No local TREATMENT is needed beyond an avoidance of irritative manipulations of the skin; and in severe cases, light applications of pure olive oil. *Copaiva*, sixth decimal, internally, will hasten recovery.

Erythema intertrigo (Intertrigo; Eczema intertrigo).

SYMPTOMS.—As the name indicates, this is an erythema between two opposing or chafing surfaces. It occurs about the buttocks, groins and folds of the skin of the neck in infants; in fat adults it may occur about the neck, in the axilla, groins, and less often on the prepuce in men, the vulva and under the breasts in women. The congested surfaces are often moist from the presence of a muciform or muco-purulent exudation and the most intense redness is frequently at the junction of the two folds of skin, due probably to the greater imprisonment of sweat and exudation there. The affected skin is liable to become eczematous, or a dermatitis may follow on a prolonged or unrelieved attack.

ETIOLOGY.—In infants lack of cleanliness and attention to the removal of soiled clothing, or some irritating quality of the urine, feces or sweat are common causes of intertrigo. In adults, a gouty diathesis, obesity, free perspiration and neglect are probably the usual causes. Heat, friction and moisture co-operate to make the condition possible.

DIAGNOSIS.—From *eczema* by the limits of intertrigo to opposing surfaces of the skin, the deeper redness at the junction of the two surfaces, by the discharge not stiffening the linen and by the apparent absence of much itching. *Seborrhæic dermatitis* is no doubt mistaken for intertrigo, but the former, if beginning on the skin in contact, is likely to spread on to the free surface, is apt to be worse at the periphery of the patch rather than at the junction of the skin with itself, and greasy scales at some point can be usually found. So-called intertrigo of the genitals is nearly always seborrhæic in origin. *Congenital syphilis* in infants may give rise to more or less erythema of the buttocks, but the redness is not limited to that region, and other signs of syphilis usually appear. *Tinea circinata* or *eczema marginatum*, as it was named by Hebra, when occurring on the inner aspect of the thighs, can be recognized by the characteristic “festooning” of the elevated border, by its exudative type, and by the microscopic evidences of a fungus.

TREATMENT.—Removal of the cause, cleanliness, mechanical agents to protect the surfaces in contact, and the indicated remedy comprise the methods of relief. After the surfaces are cleansed, they may be dusted over with some simple hygroscopic powder, such as finely-powdered *starch*, *rice*, *lycopodium*, etc., and if the surfaces are not subject to much friction a fold of sheet lint can be laid over the powdered surface. In intertrigo of the axilla and under the dependent breasts of women the powder bags recommended by Unna are a useful device. The bags are filled with a fine powder and then stitched (quilted) across to prevent shifting of the powder; worn under the breasts or armpits, they not only absorb the discharges, but by even pressure diminish the flow of blood into the weakened capillaries. On surfaces subject to considerable friction a lubricant may be of more service than a powder; this may consist of *vaseline*, *cold cream* salve, or any non-irritating sterilized oil or fat. In the most severe types the editor uses *carron oil* freely spread upon fine linen, in preference to all other local treatment. If a medicated ointment is needed, five to twenty grains of *gallanol* or the same of *boric acid* may be

thoroughly incorporated in an ounce of benzoated lard or vaseline for the purpose. Both substances possess the advantage of a local action only. Gouty subjects must be dieted if a rapid recurrence is to be avoided. For internal use see indications for *Benzoic acid*, *Hypericum*, *Lycop.*, *Merc. viv.*, *Nat. phos.*, *Nit. acid* and *Sulphur*.

Erythema traumaticum.—Local redness of the skin resulting from friction, pressure or injury; if moderate and temporary, may be of slight importance and generally subsides on removal of the cause. If intense or continued, it may pass into inflammation in the form of dermatitis, or papular, vesicular or pustular eruptions common to other diseases may follow, and even result in local gangrene or ulceration.

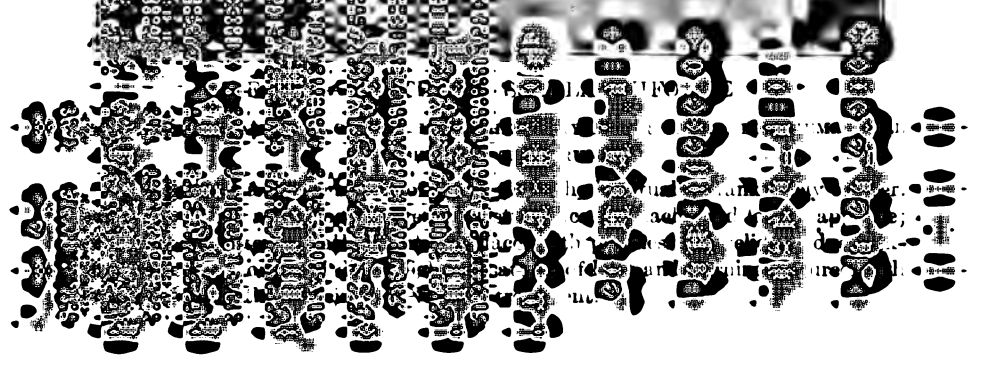
Erythema paratrimma is a name formerly used to denote the redness from pressure over a prominence, threatening the formation of a *bed sore*. Happily the latter is no longer a common sequence. Some ordinary causes are the pressure from garters, clothing about the waist, tight or ill-fitting shoes, from occupations requiring long sitting; from the contact of irritating secretions from the mucous outlets, or other discharges, as in some cases of intertrigo, when practically the latter is identified with traumatic erythema.

The TREATMENT is chiefly causal. Other measures can be employed as indicated for intertrigo, if required. Sometimes pigmentation may remain as a result of continued or repeated local erythema. The more severe cases may require *Arnica*, *Borax*, *Graph.* or *Hypericum* internally.

Erythema caloricum.—Hyperæmic redness of the skin resulting from exposure to either heat or cold is not uncommon. The so-called "sun burn" is perhaps the most familiar example of this form of erythema. It may result from atmospheric cold as well, which, if long enough continued, may produce a bluish or livid color from venous stasis. From artificial heat it is seen in cooks, stokers and others who are in the habit of warming their legs by the fire; this *erythema ab igne* of Crocker shows in rings and gyrate shapes on the front of the legs, which gradually become darker from pigmentation. If the exposure to heat is discontinued the redness gradually disappears, leaving a brownish discoloration, which is said to have been mistaken for syphilitic stains. All forms of erythema caloricum of much duration are likely to induce pigmentation, which slowly disappears after the cause is avoided. This variety of erythema easily develops into dermatitis calorica if the heat or cold is intense enough or long continued.

The DIAGNOSIS of erythema calorica is easily made and is sometimes of importance in the way of excluding other forms of redness or pigmentation.

No TREATMENT is required beyond avoiding the cause and the simplest means for temporary protection of the reddened skin. Rarely there may be a persistency of the erythema calling for internal medication. The writer has reported one marked instance of this kind of six months' duration, due to cold, and which was rapidly cured with *Belladonna*. Other remedies likely to



be indicated are *Agaricus*, *Arnica*, *Borax*, *Cad.*, *Canth.*, *Carbo ani.*, *Crotal.*, *Hepar*, *Nit. acid*, *Rhus. tox.* and *Sulphur*.

Erythema pudoris et iracundiae is a name given to a usually physiological flushing of the skin of the face, neck or upper part of the body, generally as a reflex effect of emotions, but sometimes from severe mental or physical exertion. It is nearly always transient in duration. When it becomes persistent or in any case causes mental distress, mortification, depression, etc., it is essentially pathological, and as such demands medical treatment by indicated remedies, chief of which are *Bell.* and *Nux Vomica*.

Erythema laeve denotes a redness of the skin of the extremities consecutive with swelling, oedema and tension of the part, and due to vascular weakness. If long-continued, eczema or other form of inflammation is likely to develop.

Erythema medicamentosum or congestion of the skin due to the ingestion of drugs, will be considered under dermatitis medicamentosa.

Erythema venenatum will be described under dermatitis venenata.

Erythema gangrenosum will be found under dermatitis gangrenosa.

Erythema pernio, or chilblain, will be treated under dermatitis caloric.

Erythema vacciniforme is included in vaccination eruptions.

Erythema scarlatiniforme (*Erythema roseola*, etc.).—Under the above captions and other divisional heads are included non-contagious exanthems frequently closely resembling the rash of scarlet fever, less often rubeoloid in appearance, and in the mildest degree, especially in infants, presenting a roseola-like redness. Distinctions in name have been made between those cases unattended with pyretic disturbance and those exhibiting some rise in systemic temperature; and of the latter between the desquamative and the non-desquamative. These distinctions have been elaborated particularly by French dermatologists, and are not fully admitted by observers in other countries. Space does not permit a discussion of the merits of these subdivisions here. After an observation of all grades of scarlatinoid erythemas during thirty-five years of general and consultation practice, the author can see no good grounds (etiological or otherwise) for dividing these cases, except in the matter of degree. While they certainly may be due to widely different causes, it is not apparent that any one or class of causes produce a distinct type of erythema, or, in fact, that they necessarily always produce any erythema at all; and it is likely that individual peculiarities have quite as much to do with the degree of eruption and general disturbances as have the different causal factors. In general it may be said that the milder cases exhibit most often roseola forms of hyperæmia, and the severer cases the rubeoloid or scarlatinoid forms. In pathogenesis this class of erythemas may be idiopathic or symptomatic.

In the *mildest form*, the erythema may occur quite suddenly in small macules or in a punctate rash, distributed over the face, trunk and extremities. It is chiefly seen in infants or young children, *erythema infantilis*, and lasts only a few hours, *erythema fugax*, or a few days, disappearing without

desquamation. In form or color there may be a likeness to roseola, measles or scarlatina, but no other symptoms of the two last diseases appear. The term *erythema roseola* is a superfluity of expression which had best be discarded altogether as a name. It refers, of course, to the roseola form of erythema and is, therefore, a roseoloid rash which it is absurd to dignify by title as distinct from a rubeoloid rash due to the same causes and of the same nature.

In a *second degree*, there may be a temporary rise of temperature of one to four degrees preceding the appearance of the eruption. A coated tongue, restlessness and occasionally a moderate redness of the fauces and palate may attend the fever. The erythema commonly occurs in moderate-sized macules, without any rule as to shape or distribution. Sometimes there are rings of redness or figurate shapes; at other times the erythema may be punctate or diffused more or less widely, rarely being universal. The redness is of short duration, but may reappear at new points and so continue for several days.

In other cases, with even less constitutional disturbance (which soon subsides), the rash may appear quite suddenly in the form of a punctate erythema almost exactly like the efflorescence of scarlet fever, but without any regularity as to location. The face frequently is not involved, and if so, the redness is apt to be sharply defined, as it may be also elsewhere. The eruption may lose its punctate character and a diffused redness remain for from three days to a week from the beginning, followed generally by a fine or flaky desquamation, according to the intensity and duration of the eruption. The fauces show some degree of redness. Like the mildest form of erythema, these eruptions are chiefly seen in young children, but are not uncommon in older children or rare in adults.

Very similar forms of erythema may occur as an occasional symptom during the onset or career of a large number of diseases, some of them characterized by other lesions and many of them febrile in nature. Patchy erythema may attend the onset of variola, varicella, vaccinia; occur in the course of diphtheria, malaria (*roseola febrilis*), influenza, etc. Occasionally rubeoloid or scarlatinoid eruptions are seen with these and other diseases. Frequently during the onset of syphilis finger-end-sized spots of faintly or dull red erythema may be observed.

The most *severe degree* of diffused erythema has been described by French authorities as *erythema scarlatiniforme desquamaticum*, in which the mucous surfaces are often affected to a considerable extent, so that the tongue becomes somewhat denuded and looks smooth or raw; there is more or less sore throat, and sometimes the nasal membrane and the conjunctiva are affected. The eruption may be punctate, but it is more often a diffused redness, and more persistent than in other forms. Desquamation in large scales begins during the first week, the flakes gradually becoming smaller until they cease to form. Scaling on parts of the skin not at the seat of the eruption may occur, and in severe cases the nails and hair may fall out. The whole duration of an attack is seldom less than three weeks, and may be prolonged to

two months. There is a marked tendency to recurrence of the attacks, especially with the change of the seasons, and in cases due to uremia or some diathesis. Among the relapsing desquamative erythemas, it is well to note that rare congenital form called "deciduous skin" or *keratolysis*, in which the person afflicted periodically casts off a portion, of varying extent, of the dermal covering.

Erythema scarlatiniforme in any degree may give rise to subjective sensations of pricking, burning or itching; these may be pronounced and troublesome, or trivial, transient, and in many cases altogether absent. Occasionally with the erythema, miliaria vesicles may be found, some swelling of the skin exist, or hemorrhagic points appear. It will be understood, of course, that when erythema is symptomatic of some distinct disease or condition, the symptoms, both subjective and objective, of the primary affection may be present.

ETIOLOGY AND PATHOLOGY OF ERYTHEMA SIMPLEX.—Idiosyncrasy undoubtedly plays a prominent part in the operation of the causes which produce the forms of erythema under consideration. Age is a predisposing influence, as the affection is much more common in children than in adults. In the early years of life gastro-intestinal disturbances are apparent causes of the milder forms of erythema. Change of season without any corresponding change in diet, especially in the over-fed, may lead to an outbreak. Certain foods, either fruit, vegetable, shell-fish or meat, may cause it. Habitual excess of hydro-carbon elements in the food I have noted in the history of some cases, and the existence of fermentative indigestion in a few others. Sewer gas poisoning and auto-intoxication with ptomaines have been named as causes, also excess of certain elements in the fluids and tissues of the body, such as produce rheumatism or gout. Injuries to the surface abundantly supplied with nerves, or surgical operations, may reflexly cause an erythema. Before the days of antiseptis, septicæmia, pyæmia and puerperal affections were responsible for some cases; even now imprisoned pathological secretions, as from peritonitis, empyema, etc., may be causal factors. Uræmia, malaria and several eruptive diseases have been referred to as causes in a previous section. Some exceptional peculiarity in the primary disease or in the individual attacked is the only explanation known for the occasional resulting erythema. The latter supposition applies also to the exceptional effect of drugs upon the skin, which may show any of the forms of erythema described, as well as other types of eruption. Some of these drug effects may come from their elimination by the skin, but most are in the nature of a reflex from irritations of nerve tissues within the body. They are discussed under *dermatitis medicamentosa*. In a large proportion of cases of erythema no cause is apparent.

Regarding the *pathology* of scarlatiniform erythema little can be added to what has been said under etiology. The most probable theory is that certain individuals possess an inherent intolerance of the nerve centres to the presence of some substance temporarily circulating in the system, producing reflexly a dilatation of the cutaneous blood-vessels. The degree of intolerance may have as much to do with the degree of the erythema as has the nature or

quality of the toxic substance, whether the latter be physiological (to most persons), pathological or medicinal. Brocq advances the opinion that the desquamative form of erythema scarlatiniforme is a mild variety of pityriasis rubra. Judging by the cases occurring in this country there is no basis for that belief, though the severe desquamative forms are here comparatively rare. In a large ambulant clinic and in five hospitals the author has seen only one marked case in several years.

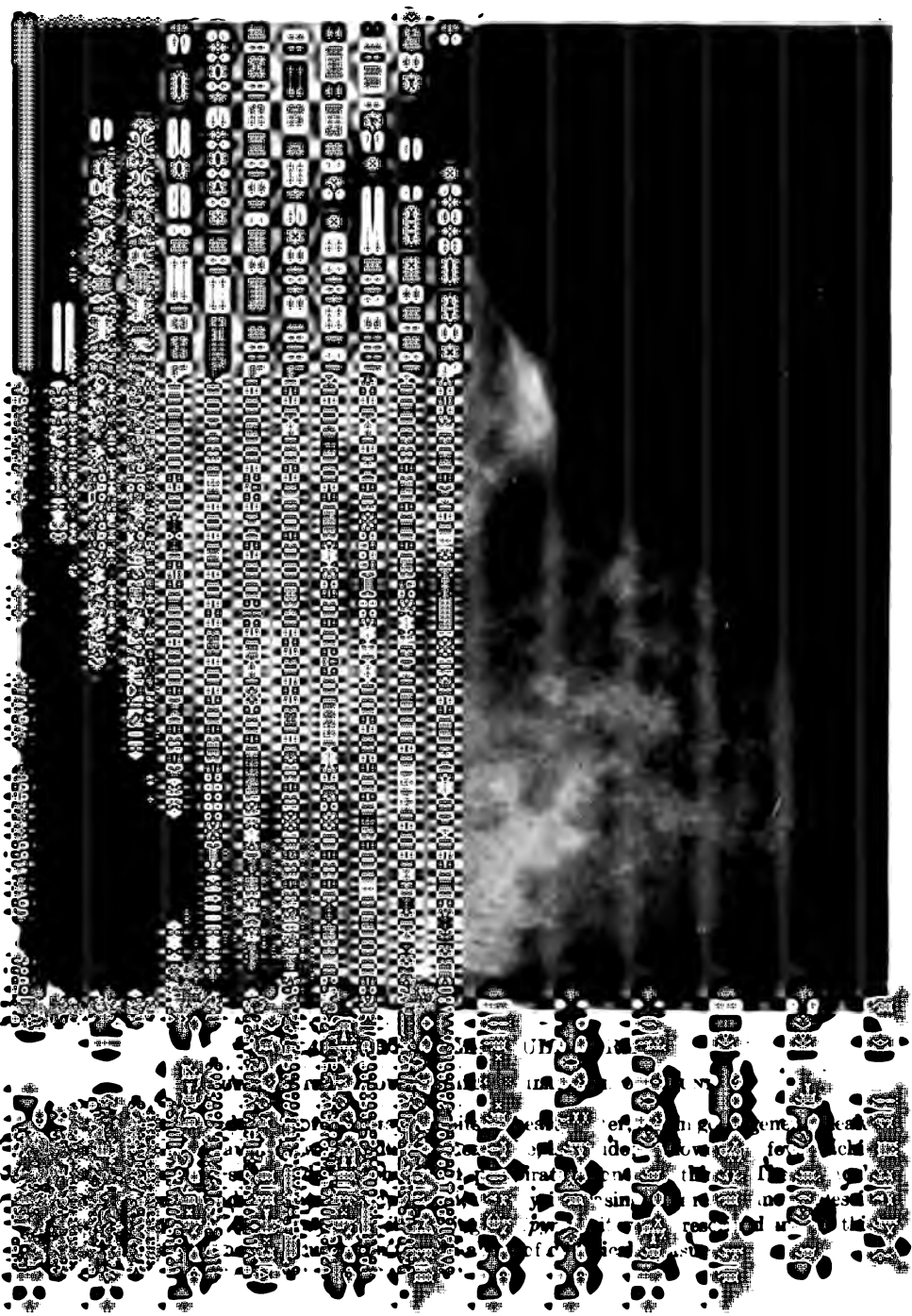
DIAGNOSIS.—Recognition of erythema scarlatiniforme is important, but not always easy and sometimes very difficult. The many instances of recurrent *scarlet fever* in former days were doubtless many of them types of scarlatiniform erythema. A comparison of the most common symptoms of the two affections will usually determine the diagnosis. Thus while the throat may be red in erythema, it is not swollen as in scarlatina; the strawberry tongue of the latter is absent; the rise of temperature may be considerable, but is not continuous as in scarlet fever; the erythema patches are apt to be well defined with areas of clear skin between in contrast with the less red and diffused scarlatina eruption; nephritis is not associated with erythema except as a cause; the latter is non-contagious and desquamation begins early, on the third or fourth day; scarlatina is contagious, and desquamation does not begin until the ninth or tenth day. The latter difference will generally clear up doubtful cases. Isolation is the only safe course in the interval. When an erythema resembles the efflorescence of *measles*, there would not be a history of a prodromal coryza and fever with continued rise of temperature after the outbreak of the eruption as characterizes the latter, neither would the rash of erythema be likely to begin upon the face. If *rötheln* is suspected from the appearance of the erythematous rash, and there is no enlargement of the submaxillary, sterno-mastoid or occipital glands found, it may be excluded, unless there is a clear history of contagion.

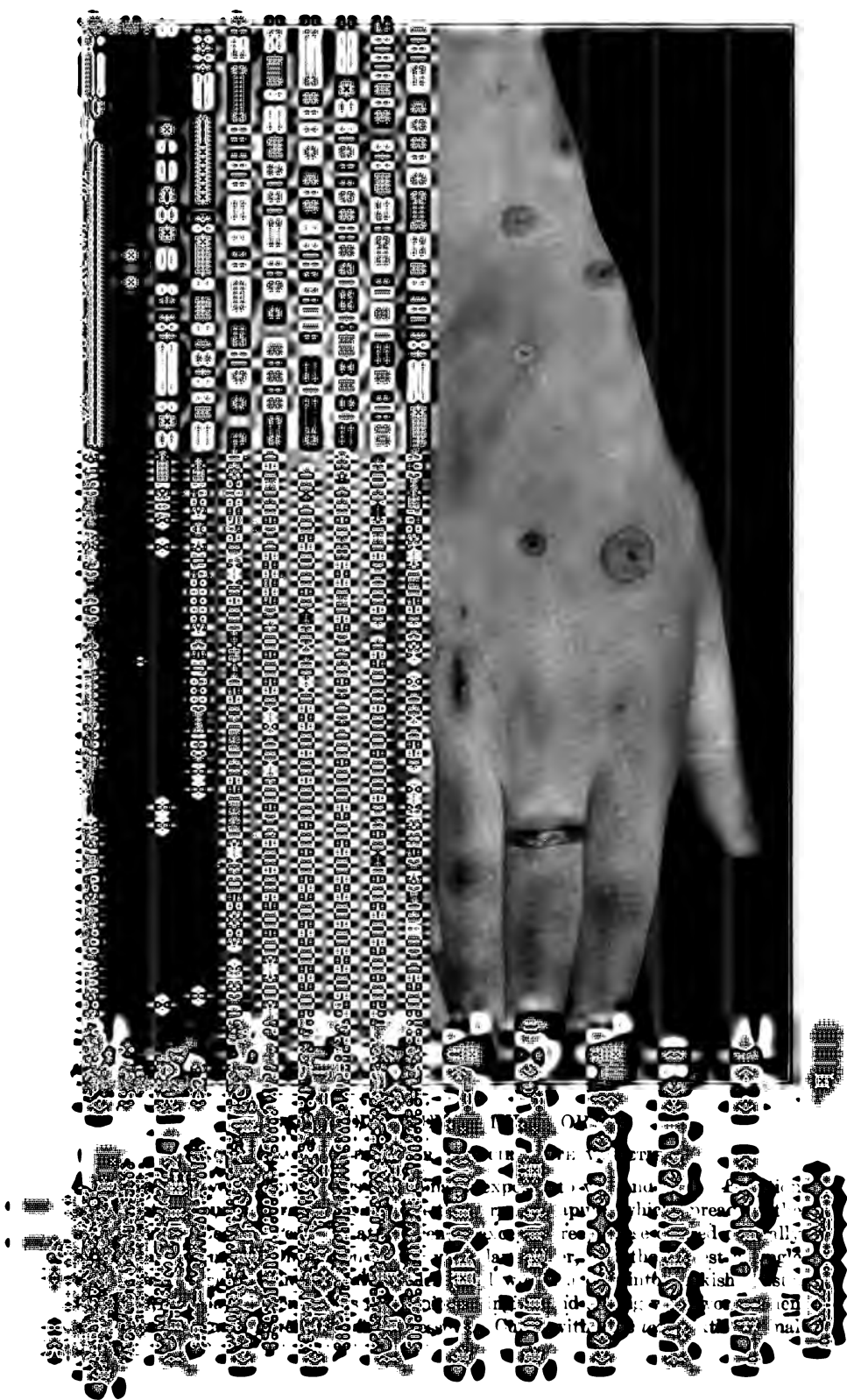
PROGNOSIS.—This is nearly always favorable, the exceptions being sometimes in cases resulting from such grave conditions as pyæmia, septicæmia, uræmia, etc. If the attacks of erythema are due to an idiosyncrasy, they are very likely to recur sooner or later from the same or other causes.

TREATMENT.—No local treatment is needed beyond mild ammonia or soda baths. If desquamation is a feature, it may be facilitated by applications of non-medicated oil or fat. The appropriate internal remedy will modify the course of scarlatiniform erythema and tend to prevent a recurrence. See indications for *Ailanth.*, *Am. carb.*, *Bell.*, *Chin. sulph.*, *Colch.*, *Hyoscy.*, *Juglans cin.*, *Stramon.* and *Terebinth.*

ERYTHEMA EXUDATIVUM

Erythema multiforme is a congestive disease of the skin attended with various degrees of exudation, as exhibited in elevated lesions, diverse in size, shape and color. The different aspects of the eruption have led to the use of several names to distinguish the most prominent objective features present at the time. These terms will be found further on in the text.





SYMPTOMS.—Multiform erythema shows a marked preference for certain locations. These in the order of frequency are on the back of the hands; the forearms, the dorsum of the feet, the legs, face, neck and back; occasionally the eruption is seen on other parts of the surface; rarely it is generalized over the whole skin and may come on the mucous surfaces of the mouth, tongue and eyes. Very often slight systemic disturbance precedes and attends the eruption, such as dull pains in the head, back, legs, or only in the joints, with a general sense of illness. A few cases may have more severe symptoms with considerable fever (from 101° to 105°) and an accelerated pulse. Swelling of the spleen has been observed. In from one-half to three or four days the eruption appears on the surface, nearly always first upon the backs of the hands, later involving some other portions of the surfaces above named; but occasionally not extending beyond the dorsal surfaces of the hands and forearms. The distribution is commonly bilateral but not fully symmetrical, perhaps showing earlier on one side than on the other. The temperature may subside with the first outbreak of the eruption, or it may continue as long as the latter extends, or even rise during that period. Occurring in children the disease is likely to be attended with more febrile and other systemic symptoms than in adults. The primary lesions may occur in the form of convex papules, of a bright or purplish-red color, varying in size from a pin-head to a pea, and grouped discretely or close together in patches, *erythema papulatum*. The papules may coalesce if near together or increase in size by peripheral extension until a deep red, blotched, irregular patch is formed, from which the color can be made to nearly or quite disappear by moderate pressure. Often the eruption is of short duration, fading away, sometimes with slight desquamation, and leaving a temporary pigmentation. Occasionally the discrete papules may increase to the size of a nodule or tubercle, *erythema tuberculatum* or *tuberosum*. Papules or tubercles continuing to enlarge may resolve in the centre, forming a slightly elevated ring of redness in contrast with the depressed pale or purplish-red centre, *erythema circinatum* or *annulare*. As the lesion extends centrifugally zones of color may appear, or a new papule may develop in the depressed centre, and passing through a similar manner of evolution as the first papule form additional ring or rings, *erythema iris*; in this way from two to six rings may be produced varying in color with the order of their appearance. If a spreading ring of erythema meets other lesions, the parts brought in contact melt away leaving broken circles or multiple curves, depending in number and outline on the number of lesions which have come together, *erythema gyratum*. Again a section of a circle of erythema may resolve and the remnant continue to spread progressively with an abrupt outer border, *erythema marginatum*; this may advance rapidly over a large extent of surface, leaving behind a degree of redness which gradually merges into pigmentation. The tendency to spread rapidly may show early in the papular stage by the quickly formed elevated plaques soon absorbing in the centre and their rims rolling out to join each other.

If the exudation is acute and intense enough the papules may become elevated into small or large wheal-like lesions, with marked itching or stinging sensations and often blood-capped excoriations due to scratching, *erythema urticatum* or *lichen urticatus*. As a result also, vesicles and bullæ may form on any of the lesions (*erythema vesiculosum* and *bullosum*), and occasionally they may appear to arise from the sound skin and intermingle with other primary lesions. Similar bullous lesions may appear on the mucous surfaces of the mouth and nose. The contents of vesicles or bullæ may become bloody from hemorrhage into them, and occasionally their contents may become purulent. In a case of exudative erythema recently under observation, a large number of secondary blebs formed and a few became purulent. On rupture of a bleb, the exposed surface had the appearance of a superficial ulcer without being depressed. The unruptured bullæ dried into crusts, underneath which the surface was red and slightly moist. The patient was debilitated, but responded quickly to *arsenicum*. No scars formed.

The eruptions of erythema multiforme often appear in crops and rarely the various phases of the disease may be witnessed in one case; commonly the eruption is arrested at some intermediate stage and resolution sets in. More or less pigmentation succeeds the redness, gradually disappearing. Frequently the admixture of colors from congestion and stains gives a variegation of hues suggestive of the effects of contusions of the skin.

The *duration* varies from one to five weeks. Seldom has the editor seen an attack last under treatment more than three weeks; very rarely they may continue for an indefinite period. Relapses are common, and may be as frequent as every few weeks, or as far apart as annually, or at shorter or longer intervals.

Erythema iris (*Herpes iris*).—An uncommon form of erythema always characterized by the formation at some time in its course by central or concentric vesiculation has been known as *herpes iris*; but as the vesicles are secondary to congestive papules, it is now generally admitted to be a type of erythema multiforme, though occurring unassociated in its course with other forms.

The usual features of an attack begin from twelve to twenty-four hours after the eruption of an erythema papule by the development of a pin-head sized vesicle in the centre of the papule. This enlarges in diameter with the papular swelling, but never to the full width of the latter, so that a reddish border is always present; the vesicle flattens in the centre, forming a depression, around which is a ring of vesiculation and outside of that a reddish elevated border, and around all a narrow pinkish areola. Sometimes a vesicle is left in the centre with a circular depression around it, showing a slightly different clinical picture from that described. In perhaps an equal per cent. of cases, the vesiculation (in discrete or confluent form) may begin at the circumference of a papule or ring of papules in sharp contrast with the deep red elevated centre, *herpes circinatus*. Exudation may spread outside the first row of vesicles on which another circle of vesicles may appear, and so on until

a series of concentric rings may be seen in various stages of evolution, with the remnants of a sunken vesicle or a crust in the centre, and about all a more or less distinct red zone. In this manner lesions may reach the size of a half inch or more in diameter. Occasionally, in severe cases, two or more lesions may coalesce and form irregular patches; or, still rarer, small or large bullæ may form in place of the central vesicles, and there may be hemorrhage into their cavities. These cases may simulate pemphigus.

The common locations of herpes iris are on the extensor surfaces of the hands and fingers, wrists, insteps and knees; severe cases may have a more extended distribution, and appear on the flexor aspects of the extremities, the palms, soles, etc., or become generalized over the whole surface. The mucous membrane of the mouth, throat and conjunctiva may be involved, vesicles or crusts forming on the lips, the tongue and soft palate. Conjunctivitis and ecchymoses into the orbital connective tissue have been reported.

The eruption of herpes iris occurs in crops, generally symmetrical, though the corresponding outbreak on one side may be later in appearance than the first. Its duration varies with the number of outbreaks, from one to four weeks; near relapses may, however, greatly prolong its duration.

Erythema nodosum (*Dermatitis contusiformis*).—This form of exudative erythema occurs often enough with erythema papulatum or some other form of erythema multiforme to show its relation thereto; though in clinical type, it is usually a distinct affection. Unna points out that the difference between this condition and erythema multiforme rests upon the fact that erythema nodosum never widens concentrically, never produces bullæ and never exhibits annular vesicles.

Most attacks begin with systemic rise of temperature of three or four degrees, pains in the joints of the legs, headache and general malaise. These symptoms, however, may be absent, except the articular pains of the lower extremities, with tenderness over the tibia, where the eruption nearly always appears on the second or third day. The lesions occur in crops of three or four symmetrical, roundish or oval, nodular swellings, which may vary in size from a cherry to a hen's egg, and merge in an ill-defined way into the surrounding tissues, which may appear somewhat œdematous. The nodules are firm but sore to the touch, and for one or two days after their advent are attended with sensations of aching, burning or stinging; later they soften and appear to slightly fluctuate, but never rupture or suppurate. At first of a bright red or pink and white color, they become a dusky red, and passing through the ordinary changing colors of a bruise, "black and blue," they disappear in a week to ten days. New crops every few days may prolong the whole course for two to five weeks. Unlike the previously considered forms of erythema, recurrences are rare.

Occasionally the disease may be located on other parts than the anterior tibial surfaces of the skin, such as the arms, face, back and thighs. In these situations the nodular lesions are likely to be smaller than those on the legs.

ETIOLOGY AND PATHOLOGY OF EXUDATIVE ERYTHEMAS.—The *predisposing*

causes of erythema multiforme are age, sex, seasons; anæmia, chlorosis, rheumatism, gout and other nutritive disturbances; malaria and the noxious emanations from defective drainage may be contributing or exciting factors. One attack creates a liability to others. The influence of *age* is such that the majority of cases occur between the ages of ten and thirty, and while no period of life is exempt it is extremely rare in early infancy or old age. I have seen only one case under one year and only two after the fiftieth year of life. Both of the latter were erythema papulatum of the hands and wrists. The female *sex* are more subject to all forms of erythema, probably because their nerve structures are more susceptible to disturbing influences. Change of *seasons* in the spring and autumn favor outbreaks. This is seen in recurrences as well as in the first attacks.

Anæmia of various kinds may so lower the resistance of the skin to ordinary causes as to permit an unusual effect of the latter on the skin; or some element in the blood or tissues, as in rheumatism, malaria, etc., may irritate the nerve centres and be reflected in congestion and exudation of the skin.

The more common *exciting* causes appear to be exposure to heat, cold and winds; irritations of the genito-urinary organs from aggravations of disease or from instruments; various affections attended with primary or secondary infection of the system, such as diphtheria, septicæmia, cholera, variola, typhoid and typhus fevers, infectious endocarditis, uræmia, syphilis, influenza, etc. The ingestion of certain drugs at a time when the system is rendered susceptible by predisposing conditions or idiosyncrasy may excite outbreaks of exudative erythema. Of these may be mentioned quinine, chloral, antipyrine, copaiba, digitalis, arsenic, the iodine and bromine salts and mercury. Indigestion or irritations from certain articles of diet seem to promote outbreaks of multiform erythema, but in most all of the cases I have seen that could be attributed to the latter causes the eruption, while closely resembling some form of erythema multiforme, has had the ephemeral history of urticaria. Two cases recently under observation are of etiological as well as therapeutic interest: One, a middle-aged woman who habitually uses chloral at night for insomnia, has every few weeks an eruption of quite typical erythema papulatum on the extensor surface of the extremities, which lasts for about two weeks, gradually resolving; the other, a young Irish girl, who recently arrived in this country, has had outbreaks for three weeks of a *similar* eruption on the extensor surfaces of the extremities, chest and face, but many of the lesions have come and disappeared within twenty-four hours, and none have lasted over three days. Probably her attack was induced by change of climate and diet. She has rapidly improved on simple regulation of diet and the administration of *chloral*. The editor has seen seven cases of multiform erythema occurring in emigrants just landed, in which the etiological factors were similar to the case just mentioned. Osler has contributed some valuable data on the relations existing between the erythema group and visceral conditions, and has demonstrated that the cutaneous lesions are merely surface reflections of a visceral disorder.

Notwithstanding the multiple influences which may operate to produce erythema multiforme, there are many cases occurring without any ascertainable cause, and are doubtfully idiopathic in pathogenesis. Perhaps in relation to this disease, the latter term may be synonymous with idiosyncratic, for practically such cases respond most readily to indicated remedies.

Regarding the *pathology* of erythema multiforme there is much difference of opinion. That it is a systemic disease, or sometimes due to infection, is generally entertained, but the theories that it is essentially infectious or a mere dermatitis are not proven by the clinical histories of most cases. That it is sometimes toxic and invariably angio-neurotic from the effect of varying and differently acting causes is the most plausible, though partial, explanation of its pathological inception. The *tissue changes* are confined chiefly to the upper parts of the corium and consist, in a less or greater degree, of an escape of serum, white and red blood corpuscles from the dilated vessels of the papillary and sub-papillary layers, which in the papular and tubercular forms, push outward the epidermis. If the pressure of the exudation toward the surface is great enough, serum is forced between the cells of the rete mucosum and vesicles or bullæ are formed, covered by the more superficial layers of the epidermis. An extravasation of blood from the vessels into the tissues may take place in some cases. Hebra advanced the theory that in erythema nodosum the morbid process was an inflammation of the lymphatic vessels.

Other diseases may complicate the course of erythema multiforme or be consecutive to it, such as endocarditis, pleuritis, affections of the kidneys, brain, etc. Local sequelæ, such as boils, ulceration, abscess and gangrene, may occasionally follow.

DIAGNOSIS.—The characteristic features of erythema multiforme, the acute onset, symmetrical localization of the eruption on certain regions, its occurrence in crops, persistence of individual lesions for several days, their changing aspect, subsequent pigmentation, absence of marked sensations and tendency to recur annually, will generally suffice to distinguish it from other eruptive diseases.

Urticaria lesions may occasionally simulate papular erythema; in fact, sometimes the two affections seem to intermingle, but nearly always lack of symmetry in distribution or any special localization of the eruption of urticaria, the individual lesions seldom lasting more than one day, and the pronounced stinging or itching sensation, will determine the existence of that disease as compared with erythema papulosum. When the ordinary pink and white wheals of urticaria are present there is no difficulty, as they are pathognomonic.

The papules of *eczema* are smaller than in erythema, persist longer and do not enlarge. Some may become vesicular, the itching is generally severe, and constitutional symptoms common in the early stage of erythema multiforme are absent.

Rötheln often begins with moderate febrile disturbance, as is common to erythema multiforme, but the eruption of the former begins first on face

and extends over the body instead of being localized and limited in distribution as in the latter. The lesions of r  theln are rosy red and do not usually enlarge, and there is nearly always an attendant swelling of the glands of the neck.

The circular forms may be distinguished from *psoriasis* and *ringworm* lesions by their symmetrical distribution, absence of scaling and acute course.

Erythema iris and *herpes iris* can hardly be mistaken for any other eruption, if their features as to situation, acuteness of evolution, etc., are borne in mind. Erythema nodosum has equally distinct features in the location over the anterior surfaces of the tibia (rarely over the ulna), of oval tender nodes, passing through gradations of color in their process of evolution. *Syphilitic nodes* of the secondary stage might objectively bear a close resemblance, but there would be almost invariably other evidences of syphilis present, as nodes are not likely to appear in the secondary period of mild cases. *Tertiary syphilitic nodules* lack symmetry in arrangement and are slow in development and course, and may exist a long time without redness of the skin.

PROGNOSIS.—Uncomplicated cases of erythema multiforme are nearly sure to get well in from one to five weeks, the more persistent cases leaving pigmentations which gradually fade away. Any form is liable to recur, but erythema nodosum least of all. In complicated cases the prognosis must in great measure depend on the nature of the associated disease.

TREATMENT.—No local treatment is needed in any form of erythema multiforme beyond the comforting application of some mild alkaline water, cologne or alcohol and water. Causal treatment may call for physiological methods or pathogenetic remedies, or both; more often the latter is alone needed if the remedy is selected from indications furnished by the whole pathogenesis, whether it be idiopathic, symptomatic or blending with the symptoms of other pathological states. See indications for *Aconite*, *Agar.*, *Apis*, *Antipy.*, *Arnica*, *Bell.*, *Chin. sul.*, *Chloral*, *Cicuta*, *Coca*, *Colch.*, *Comocl.*, *Copaiva*, *Dulc.*, *Kali mur.*, *Mer. viv.*, *Nat. mur.*, *N. phos.*, *Rhus tox.*, *Sal. acid*, *Sulph. acid*, *Urt. urens*, *Vespa*.

ERYTHEMA NODOSUM.—*Am. mur.*, *Apis*, *Aurum mur.*, *Bell.*, *Juglans cin.*, *Kali brom.*, *Rhus tox.*, *Sal. acid*, *Sulph. acid*.

DERMATITIS

Under this head are grouped certain inflammatory affections resulting from certain definite causes. Nearly all are purely idiopathic; some are due to the same influences that produce idiopathic forms of erythema, acting with intensity enough or long enough to carry effects beyond the limits of congestion into that of inflammation, as evidenced by redness, heat and swelling. Thus, erythema caloricum, for instance, may become rapidly or slowly a dermatitis caloricum.

DERMATITIS CALORICA

As the name indicates, this is an inflammation of the skin, resulting from the direct effects of extremes of temperature. When due to heat, it is termed dermatitis ambustionis, and when to cold, dermatitis congelationis.

Dermatitis ambustionis may arise from various forms and degrees of heat, and the pathological degree of inflammation may vary from little more than an erythema to the production of serous exudation in the shape of blisters, or in extreme cases to gangrene, ulceration, and with recovery, extensive cicatrization. When produced by heat in dry form, as from the sun, by fire, hot solids, etc., it is termed a *burn*; and when by contact with hot fluids, such as water, oils, melted fats or solids, steam, etc., is known as a *scald*.

The degree of dermatitis ambustionis is determined by the effects produced on the tissues. In the *first degree*, the skin is red and inflamed without vesiculation. In the *second degree*, there is added vesicular or bullous exudation. In the *third degree*, there is extensive destruction of the skin and sometimes of the subcutaneous tissues and consequent scarring.

SYMPTOMS.—All forms of scalds and burns are exceedingly painful. In the first degree, the local sensation of burning, smarting, tension, etc., with swelling and redness, may comprise the symptomatology; in the second and third degrees, there may be more or less shock, rise of temperature and frequently consecutive congestions and inflammations of the viscera. These latter complications may take the form of gastro-intestinal disturbances, with bloody stools and vomiting of mucus and blood; intestinal ulcers may form, sometimes ending in perforation, rapid peritonitis and fatal collapse. Severe burns about the chest or throat may be attended with bronchitis, pneumonia, pleurisy and obstructive laryngitis. Delirium, mania, convulsions or coma may appear as symptoms of cerebral congestion or effusions resulting from severe or extensive burns or scalds. Even if the primary shock is overcome, sloughing of the injured parts, profuse and fetid suppuration, with or without the presence of some complication, may soon produce alarming exhaustion; and nephritis, septicæmia or erysipelas may contribute to a fatal issue. If recovery follows from burns of the third degree cicatricial formations and their subsequent contractions are often disfiguring and distressing enough to call for plastic operations, skin grafting, etc., for relief.

DIAGNOSIS AND PROGNOSIS.—There is seldom any difficulty in distinguishing dermatitis ambustionis from the history of a case, and whether from a burn or scald is not practically important, though usually ascertainable. Of more moment is it to determine the extent and degree of the burn. On this largely rests the *prognosis*. The wider the surface involved, even in the first degree, the more doubtful is recovery. Burns of more than one-third of the surface are generally fatal in a few days. Deep burns of the skin, if circumscribed, are less grave than superficial burns of a wide area. The most

unfavorable locations are the chest, neck and abdomen; the most favorable, the more they are limited and confined to the extremities. Extremes of age are unfavorable, as are also debility, constitutional weakness and delicate organization.

TREATMENT.—The local dressings for burns and scalds should give mechanical protection, and in case of vesiculation or destruction of the skin, perfect asepsis. For burns of the first degree of small or large area, the following will be found useful:

R. Picric acid..... 3 2.
 Alcoholis..... 3 4.
 M. et add.
 Sterilized water..... 3 40.

The affected surface should be gently wiped over with the solution, then completely covered with gauze saturated with it, and a bandage applied to keep the dressing in place. As a rule, it can remain undisturbed for four days, when it may be softened with the same solution, the dressing removed and a fresh one applied. When the inflammatory action is more intense boro-glyceride ointment may be employed.

R. Boro-glyceride 50%..... 3 2.
 White wax,
 White vaseline..... 3 12. M.

This may be thoroughly applied to the affected surface and covered with several layers of sterilized gauze, held in place by a binder or bandage, as is best adapted to the location. *Carbolized* olive oil or vaseline (three to six per cent.) can be substituted for the above, when the surface involved is not too large. *Bicarbonate of soda* is a convenient application, which can be dusted thickly over the surface and covered with moist cloths and a bandage. Another dressing usually at hand, for superficial burns, is *sugar* and *water* made into a syrup, smeared over the surface, and covered with gauze moistened with oil or fat to prevent too firm sticking of the latter. Both of the above domestic applications are said to relieve the painful sensations and to yield good results. The same may be said of equal parts of *sweet oil* and *lime water* or "carron oil." *Thiol* or *ichthyol* can be employed for burns of all degrees, dissolved in an equal part of water for cases in which the skin is unbroken, and in two to four parts of water for more severe burns or when there is much inflammation. Whatever strength is used, it should be painted over the affected surface, covered with layers of gauze saturated with oil, over which may be placed oil silk or rubber tissue. *Creolin*, one to two per cent. in glycerine, is often serviceable in relieving the more intense inflammation and pain. Gauze can be saturated with it and directly applied.

When *blisters* form, and are full or tense, they can be drained off by puncture at their most dependent border, in order to save the roof wall of the blister, which, falling in contact with the surface underneath, may not only

protect it from the air, but possibly serve as a natural graft in the renewal of the epidermis. When serous exudation has ceased, a dressing found comfortable may be continued, or an ointment like the following may be found more serviceable:

R. Aristol..... 3 1.
 Sweet oil..... 3 1.
 Mix until dissolved, and then add
 Simple cerate..... 3 1. M.

This may be applied directly to the surface and covered with aristol gauze and a bandage. *Europhen* or *nosophen* can be substituted for the aristol with advantage when the affected surface is unusually dry. *Tincture of cantharides*, one to twelve parts of sterilized water, is a useful application when burning is excessive, and the drug is indicated internally. Small areas of unbroken skin may sometimes be painted over with *flexible collodion* for quick effect. *Suc. calendula*, one to ten of "carron oil," is most effective in promoting repair after the more acute stage is passed.

Dermatitis ambustionis, with destruction of the skin, either suppurative or gangrenous, demands strict local antisepsis from the first. A five per cent. solution of carbolic acid can be used to disinfect the surface, followed by lightly dusting over the more deeply burned surfaces, if not too large, with powdered *aristol*, *iodoform* or *nosophen*, and dressing the whole affected surface as directed for burns of the second degree. If the area involved is extensive, applications for a time of *borated gauze*, kept wet with a five per cent. solution of *biborate of soda*, may follow the carbolic acid solution, enveloped with abundant layers of dry antiseptic lint, covered with rubber cloth. Some of the oily antiseptic dressings may be substituted when inflammation subsides or healing has begun. Dressings should only be removed when necessitated by the accumulation of exudation and to relieve suffering. In deep burns of the extremities or into joints, amputation of parts may be required, and other surgical (plastic, etc.) methods may be needed to promote healing, or later to relieve cicatricial deformities, etc.

In burns and scalds of all degrees, *internal treatment* may be of the first importance. Shock may need to be combated and prevented. The supporting and steadying effects on the nervous and circulatory system of the primary action of *opium* may be of much value here; *morphine* by hypodermic injection in doses and frequency to meet the needs of a patient is the preferable mode of administration, always giving the minimum physiological dose until the susceptibility of the individual to the drug is known. It is sometimes surprising how small a dose is required for the purpose named. It further modifies the local pain, and except for burns of small size, is to be relied on more than the ephemeral effects of local applications of a solution of *cocaine*. General supporting treatment and stimulation when needed should not be neglected in cases where exhaustion is likely to be a feature. Much can be done by internal medication to lessen the severity of burns, to

forward healing and modify a tendency to excessive cicatricial formation. See indications for *Arnica*, *Cantharis*, *Kali mur.*, *K. phos.*, *Silicea*, *Sul. acid*, *Urt. urens* and *Graph.*, while cicatrization is under way.

Dermatitis congelationis (Chilblain; Frostbite; Pernio; Erythema Pernio).—Inflammation of the skin caused by cold, like those due to heat, may be of three grades. In the mildest form there occurs, from a sufficient chilling, a whitening of the skin in patches, with partial or complete loss of sensation therein. With the return of warmth there is burning, pricking or itching of the parts, which soon become intensely red; followed usually by a gradual disappearance of the color and other symptoms. In persons of weak circulation, such exposure often leads to a more persistent type of inflammation, especially on the digits or other borders of the hands and feet, commonly known as *chilblain*. The color of the affected skin is a purplish or bluish red, often cool to the touch, though sensations of heat, smarting, etc., are felt, especially when warmed after a chilling.

In the *second* grade of dermatitis from cold, there is produced with the reaction vesicles or bullæ, the contents of which often become bloody, and ulcers are liable to result.

The *third* degree of effect from intense or prolonged cold causes more or less death of the frozen part, with or without the occurrence of blisters of the second grade. Sensation in the affected tissue is lost; the surface is first whitened, but during forty-eight hours after the removal of the cold, swelling gradually appears, the color changes, and a line of demarcation forms, followed by the usual signs of mortification and separation by ulceration.

DIAGNOSIS AND PROGNOSIS.—Cases of frostbite come to the practitioner already diagnosed. In the milder forms recovery is almost certain under proper treatment. Chilblain has a tendency to recur with the return of cold weather until the cure is permanent. In the severer forms, it is to be borne in mind that deformity from loss of tissue or by operation to remove gangrenous parts is always a liability, and that shock may complicate the process at any stage.

TREATMENT.—Milder forms of frostbite and chilblains may be treated mechanically by friction with cooling applications of alcohol, cologne, bayrum, menthol solution, peppermint or camphor water, etc., care being taken to protect the parts subsequently from further exposure or undue pressure.

For the severer forms, the local treatment is decidedly *isopathic*—cold for the effects of cold should here be the invariable rule. The patient must be kept in a cool room, and efforts made to slowly restore the circulation to the frozen parts by frictions with snow, or ice water, continued for hours where there is any hope of a return of the blood supply. If blisters develop, they may be emptied of their contents, and some of the cooling applications named above applied until it is learned whether or not mortification is to follow. If the latter result affects the extremities, early amputation may be necessary to save life, and if impracticable or delayed, antiseptic dressing may be applied. With the re-establishment of the circulation the surrounding temper-

ature can be raised and hot nutrient liquids (or stimulants if needed) given to the patient. The subsequent treatment of favorable cases is mainly protective, and for some time after recovery exposures to severe cold should be carefully guarded against. Considerable assistance may be expected from the administration of indicated remedies. See *Agar.*, *Borax*, *Cadmium sul.*, *Carbo veg.*, *Crotal.*, *Hepar*, *Kali mur.*, *Lyc.*, *Nat. phos.*, *Sulphur*, *Sul. acid.*

DERMATITIS TRAUMATICA

Differing degrees of injury or mechanical irritations of the skin from blows, pressure, frictions, scratching, etc., cause different grades of inflammation. Whatever the traumatism may be, not requiring surgical measures, a removal of the cause and mechanical protection of the surface is usually all the treatment required. Pigmentation and thickening of the skin may result from long continued irritation and pressure. *Arnica*, *Graph.*, *Hepar*, *Hypericum* and *Sul. acid* are suitable remedies when needed.

RÖNTGEN RAY DERMATITIS

This inflammatory condition which was quite common in the early days of the employment of the X-rays, is occasionally developed in the practice of careful and experienced operators even in this day of scientific precision. The mildest cases develop an erythema, often followed by pigmentation; or vesiculation may occur, and in severer types a dry superficial slough forms which takes months to separate, and may result in an ulcer which in turn takes months and even years to heal. These serious lesions are surrounded by an inflammatory border and accompanied by pain. The cicatrix which eventually forms may be covered with telangiectases. A chronic form, occurring on the face and hands of X-ray operators, is characterized by scaliness, atrophy, obliteration of the normal lines of the skin, alopecia and at times loss of the nails.

Long exposures for skiagraphic purposes, frequent applications for therapeutic relief, the quality of the tube or personal idiosyncrasy play the *etiological roles*. It is well to remember that even if, after erythema develops, the treatment be discontinued, the dermatitis may develop, sometimes two weeks or more having intervened since the discontinuance of treatment, and that the effects are cumulative. In some instances, to obtain the desired effect, an X-ray dermatitis must be obtained. The editor has treated cases of onychomycosis, psoriasis of the nails, epithelioma and lupus vulgaris which did not respond to treatment until a dermatitis was set up. In each case the final results were satisfactory.

PATHOLOGY.—A degeneration of nucleus, as well as the cell protoplasm, involving not only the epidermis and its appendages but also the corium, may result from the use of the X-rays. The fibrous and muscular elements may

become involved, and, if an inflammatory reaction sets in, the blood-vessels become dilated, extravasation of serum and leucocytes result, the latter in turn becoming phagocytes and destroying the degenerated cells.

TREATMENT.—Improved methods of technique have lessened the frequency and intensity of these cases. The milder forms of erythema need protection and possibly a cooling lotion of *lead* and *opium* with or without the addition of glycerine or boric acid. Two to five per cent. of *creolin* in glycerine has sufficed for more intense cases. *Carron oil* (made with olive oil), or an ointment containing *orthoform* one or two drachms to the ounce of simple cerate, have been recommended. *Surgical* treatment is to be recommended in deep ulceration where the necrosed tissue must be excised and skin-grafting resorted to.

DERMATITIS MEDICAMENTOSA

(*Drug eruptions; artificial eruptions, etc.*)

Any substance which commonly produces inflammation of the skin, either from internal administration or local contact, may possibly have medicinal properties and uses. Some drugs affect the skin in a similar manner whether used internally or externally; others only or chiefly when employed in the former way, and still others produce lesions of the skin largely from external contact. Variations in the effect of substances on the skin are also in a measure due to the inherent differences in the skin itself of different individuals, idiosyncrasy, etc., as well as to the quantity and quality used and frequency of repetition. From these brief considerations it will be seen that it is impracticable to divide the pathological effects of substances upon the skin according to their method of application. Clinically it is convenient to group under *dermatitis venenata* the more common and purely external effects of drugs with other substances which produce externally lesions of the skin; since they all act in the same way by irritation of the sensory peripheral nerves, causing vascular dilatation from vaso-motor paralysis, either direct or reflected from the spinal centre. When produced purposely to deceive others, such lesions are known as *artificial* or *feigned eruptions*; and when incident to certain occupations, *trade eruptions*. Leaving to be included under the term *drug eruptions* the effects of drugs on the skin from absorption into the system by the stomach or otherwise, the effect only differing from the degree of absorption whether by the skin, stomach or other mucous surface.

Drug eruptions.—Nothing, perhaps, in the whole range of the observed effects from drugs on the human body confirms their analogous relations to the pathological features of disease and their adaptability under scientific principles in the treatment than the fact that they may produce, under favoring conditions, nearly all the primary lesions which occur in skin diseases. With few exceptions, the effects of drugs upon the skin are not constant or the same in different individuals, or on the same person at different times. This is

also true in regard to the great majority of the causes of the so-called natural diseases. Exceptionally the drug action on the skin is nearly constant and specific, as are the actions of specific causes of disease. Further analogy can be shown in varying degree in symptomatology. The local *subjective* sensations are usually itching, burning and tingling, which may precede, attend or follow the outbreak of the eruption. *Systemic* disturbance may be absent, or fever, headache, etc., similar to the onset of eruptive fevers, appear. Long-continued, some drugs may lead to grave constitutional symptoms or even to death.

The varied and multiple lesions caused by drugs, their combinations and arrangement most often simulate the exanthemata, but may resemble many other forms of cutaneous disease. It is important that the general practitioner should be familiar with the skin changes produced by drugs, especially those which more or less closely resemble eruptive fevers.

Drug eruptions may appear rapidly or slowly; commonly the congestive and exudative forms appear promptly, and the more typical inflammatory lesions, like those from iodine and bromine salts, slowly or after long use of the drug. More drugs produce *erythema* than any other lesion; next in order of frequency are vesicles, papules, wheals, bullæ, pustules and tubercles; while pigmentations, gangrene, hemorrhages and marked desquamations are rarer effects. Some few drugs may produce nearly all varieties of lesions, others only give rise to one or a few forms.

Aconite sometimes causes a reddish, hot, swollen state of the skin, resembling erysipelas; or vesicles, bullæ, wheals and pustules may follow its use.

Ailanthus produces a punctate erythema of a dark red or purplish color, especially on the face.

Amygdala amara (bitter almond) has caused erythema and wheals, from both internal and external use.

Anacardium has a very pronounced inflammatory action on the skin, which shows in erythema and swelling (erysipelaform), or vesicles, papules, pustules and bullæ. In a case under the author's observation, a generalized eruption of patchy erythema, on which were situated small papules and vesicles with a few warty-like lesions, occurred from doses of anacardium tincture.

Antimonium crudum and *tartaricum* have produced vesicular, pustular and wheal-like eruptions. Some of the pustules (from the tartrate) were deep-seated like boils, and some left bluish red stains (face). Crude antimony long continued may cause papillary excrescences.

Antifebrine (or *acetanilid*) shows its toxic action often by producing a cyanotic erythema or discoloration of the skin.

Antipyrine and others of its class (manufactured from the *petroleum* products by the action of glacial acetic acid) have caused many times erythematous macules, most often resembling measles, less often papules and wheals, and occasionally blisters, pustules (furuncular) and purpuric spots. With the outbreaks there may be profuse perspiration, and the macular eruption may be followed by desquamation and pigmentation.

Antitoxins and other inoculation injections may be followed by cutaneous reactions or lesions. Practically little is known as yet of the exact near and remote effects of these products on the skin, if we except vaccination. *Tuberculin* rash may be scarlatiniform, morbilliform or in irregular patches scattered here and there about the trunk. Subjective sensations may be slight or absent, but desquamation sometimes follows. Several cases of generalized psoriasis have been reported as following tuberculin injections in the treatment of leprosy. *Diphtheria antitoxin* causes erythematous, scarlatiniform, morbilliform, urticarial or purpuric eruptions in an appreciable number of cases. *Tetanus antitoxin* injection is reported to have caused an urticarial eruption which persisted for thirty-six hours.

Apium virus produces a generalized eruption of wheals, or an erysipelatous redness and swelling, and sometimes a deep red erythema.

Arsenicum and preparations containing arsenic in some form, have produced nearly every form of skin lesion in many and different cases, so arranged as to simulate a large number of cutaneous diseases. Erythema, papules, vesicles (zoster), wheals, pustules (furuncular and carbuncular), hemorrhagic spots (petechiæ), grayish or brownish discolorations, scales (psoriasiform). The editor has seen one case of generalized psoriasis apparently produced primarily by toxic doses of arsenic, and in which secondary attacks of the same arose from moderate doses of the same drug, and a number of cases of generalized pigmentation suggestive of Addison's disease, occurring in children who have received large doses of arsenic for chorea. Thickening of the palms and soles (keratosis) has been noted from its use. Externally arsenic has a destructive effect on the skin, producing gangrene and ulcers.

Arum (Indian turnip) produces a scarlatiniform erythema, which is followed by flaking of the skin, simulating with its throat symptoms severe scarlet fever.

Aurum metallicum and the salts of gold, when prepared for medicinal use, and given internally in sufficient doses, may produce pustules, wheals or nodosities, which on the lower legs may simulate erythema induratum or syphilitic formations.

Belladonna produces a diffused scarlatiniform erythema, which may tend to assume an erysipelatous type of inflammation, and rarely as the effect of continued hæmostasis circumscribed gangrene may occur. *Atropine* solutions used in the eye have by absorption or reflexly produced erysipelatoid forms of inflammation of the lids and face, with vesicles and sometimes pustular lesions.

Benzoic acid internally may cause erythema, erythemato-papular or wheal-like lesions.

Borax has produced morbilliform erythema, or diffused erysipelatous redness, eczematous eruptions, papules, vesicles and pustules. From long use internally, squamous lesions develop strikingly like the scaling patches of psoriasis.

Bromine and its salts produce a characteristic eruption known as "bromic

acne," affecting the parts of the skin most abundantly supplied with sebaceous glands, showing the same preference in a general way as the lesions of acne vulgaris. Vesicular lesions resembling varicella may appear, also pustular formations—small, furuncular or carbuncular in type. Erythematous, urticarial, nodular, bullous, papillary, fungoid and nondescript lesions may occur singly or in various combinations.

A characteristic bromide of potassium eruption, usually occurring in infants or young children, has been carefully studied. The lesions are condylomaform, varying in size from large peas to a cherry, with a narrow areola about them. Other large lesions had a central depression, resembling molluscum, which later broke down and formed elevated, irregular ulcers. This eruption may appear some weeks after the drug has been discontinued. Crocker says he has seen bromide eruption occur in scar tissue, and in two cases was limited to the cicatrices.

Bryonia may cause a diffused elevated eruption of erythema, papules and vesicles widely distributed. A few pustules may also appear.

Calcaria carbonica, given internally, may produce wheals (sometimes linear), wart-like lesions, and eczematous forms of dermatitis.

Calcium sulphide causes well known eruption and conditions of the skin. Wheals, erythema, vesicles, pustules and hemorrhagic spots may rapidly occur on previously healthy skin; or furuncles and other pus formations may appear in the neighborhood of other lesions.

Cantharides absorbed by the skin or from internal administration may give rise to generalized erythematous pustules or erysipelatous redness with vesiculation, and eczematous papules with burning and itching sensations.

Capsicum may cause an erythema or a papulo-vesicular eruption.

Carbolic acid, when absorbed, may cause outbreaks of vesicles all over the body, sometimes changing to pustules; also, erythema; becoming generalized, with or without other lesions. Pustules and fissures may form, and from severe effects gangrene may result.

Chloral hydrate, used internally, causes various eruptions, most often erythematous, and then frequently morbilliform or scarlatiniform in appearance. At the same time the conjunctiva and throat may be congested, making the resemblance to measles or scarlet fever still more pronounced. Occasionally the patches of redness may be few and circumscribed. Vesicular, papular, urticarial, furuncular, carbuncular, purpuric lesions have been observed, and ulcers of the skin, cornea and tongue noted from the use of chloral.

Chloralamid is reported to have caused a diffused punctate erythema with the development of vesicles, attended with coryza and fever and followed by desquamation.

Chloroform, inhaled, has caused a mild erythema and rarely purpuric spots.

Chrysarobin eruptions from external contact and from absorption are a coppery-red dermatitis, which about the face may close the eyes and present a general likeness to erysipelas. In one case it resembled dermatitis exfoliativa, lasting for months. Vesicular, papular and pustular lesions have also occurred from its use.

Cicuta virosa, though seldom given in material doses, may, when used, cause erythema and large papules or tubercles on face and hands, like some of the eruptions of erythema multiforme.

Cinchona and its derivatives, especially *quinine*, frequently cause cutaneous lesions of various kinds. Quinine most often gives rise to a scarlatiniform erythema, which may be followed by desquamation or exfoliation of the epidermis. Sometimes the rash is more like measles, or it may be urticarial, erysipeloid, vesicular, bullous or purpuric in character. Gangrene of the scrotum has been observed from quinine in moderate doses. All forms of eruption are usually attended with itching or pricking sensations, and often there is a rise of systemic temperature to 101°–102°.

Conium may cause papular pustular lesions, erysipelas-like erythema, and sometimes inflammation and ulceration about the finger nails.

Condurango.—Guntz reports furuncular and acneiform lesions in twenty patients out of one thousand who were receiving this remedy for syphilis.

Copaiba and *cubebs* used internally produce similar eruptions, or rather the urticarial eruption of the latter is like one of the more numerous lesions of the former. A morbilliform rash occurring chiefly on the more distant parts of the extremities, the abdomen and chest, is the usual form of eruption, but it may be urticarial, papular, vesicular, bullous, or petechial in form.

Creosote may cause patches of redness with scaling, something like the lesions of seborrhœic dermatitis; also, wheals, vesicles and pustules; the latter may resemble small-pox lesions.

Digitalis does not often cause lesions of the skin. Scarlet forms of erythema, or darker red, as in erysipelas, vesicles, papules, and wheals have been observed from its internal use.

Dulcamara has produced an eruption of wheals with a purplish erythema, without attendant fever, indicating a languid circulation.

Euphorbium and other *resins* taken in the system cause eruption of the skin. The first named has produced an erysipelalous swelling and redness of the face and scalp, with vesiculation, throbbing pain and fever. Pustules, ulcers and gangrene have been reported as effects of this resin.

Ferrum iodid from internal administration has caused acnoid eruptions on the face, back and breast. Erythema, wheals, vesicles and pustules have been observed from its use.

Graphites prepared for medicinal use and absorbed into the system in sufficient quantity has a pronounced effect upon the tissues of the skin, which show in eczematous itching blotches, with oozing of sticky, irritating fluid on various parts of the body. A more gradual or secondary effect is seen in dry, thickened skin, which cracks easily.

Hydrastis has caused eruptions on the face, especially about the mouth, which have gone through a similar evolution as the lesions of varioloid; also, erysipelalous and intertrigo types of erythema. All its eruptions are attended with burning, sometimes very severe.

Hyoscyamus eruptions may follow from internal doses. Oedema with redness and wheals, or a purplish rash have been observed; also, purpura-like lesions, vesicles resembling chicken pox, pustules and gangrenous spots.

Iodine and its compounds, by the stomach or other absorption, may cause nearly all the primary cutaneous lesions. The pustular forms are most common, and like the bromine eruptions show a preference for portions of the skin richly supplied with oil glands; they are not, however, limited to these regions. They may be discrete, or grouped closely together to form a carbuncular appearance, which, if the cause continue, may take on a papillomatous growth. Erythema (simplex and nodose), vesicles, bullæ (sometimes of large size), petechiæ or other purpuric lesions may follow as an effect of this drug. Often various lesions commingle together, and may be present in form difficult to classify.

Iodoform taken internally or absorbed through wounds, may give rise to macules, papules, vesicles, bullæ or mixed eruptions.

Ipecac, internally, has caused a generalized, fiery-red erythema, in circular patches with elevated borders, something like erythema circinatum or annulatum. Wheals and vesicles were also observed.

Iris versicolor has produced vesicles and pustules on the face and wrists with subsequent crusting, which in association with a neuralgic pain stimulates somewhat attacks of zoster.

Jaborandi or *pilocarpine* express their greatest effect on the sweat glands in hyperidrosis, but circumscribed erythema, minute papules, vesicles and wheals have been observed from their use.

Ledum (wild rosemary), used internally, may cause red papules, vesicles and pustules, especially on face and forehead, with considerable attendant itching, biting and raw sensations.

Lycopodium in medicinal form and doses may cause in sensitive persons outbreaks of erythematous, vesicular and pustular lesions with raw surfaces, which itch, burn and easily bleed, thus resembling eczema, intertrigo, herpes, etc.

Mercury and its salts locally produce destructive inflammation of the skin; (see trade eruptions). Absorbed into the system, it may produce a variety of lesions; erythema, vesicles and pustules with acrid contents, wheals, bullæ, circumscribed abscess (furuncular), superficial and widespread ulceration. From absorption from inunctions, a universal exfoliative dermatitis has been observed. Many of the mercurial eruptions resemble the lesions of syphilis.

Mezereum produces disturbances of the skin and other tissues somewhat resembling those of mercury. Its vesicles and pustules usually go on to abundant exudation, which dries into thick whitish-yellow crusts, under which the moist exudation continues and the inflammation tends to spread in all directions. If ulcers form, they are sensitive, bleed easily, and the free secretions form heavy, sometimes elevated crusts.

Nitric acid, in full doses of the dilute form, may produce circumscribed

swelling and redness of the skin like chilblain or erysipelas; fine vesicles and pustules, which may simulate carbuncle, or if excoriated may form ulcers with irritating discharge.

Nux vomica and *strychnia* in sufficient doses internally may excite eruptions of erythema (scarlatiniform), vesicles, papules and pustules (acne-form).

Oil of sandalwood in medicinal doses has caused simple forms of erythema and petechial-like hemorrhages of the skin.

Olium morrhue may give rise, when used internally, to erythemato-vesicular lesions of the skin, or acneform papules.

Olium ricini, in full doses, has produced a pruritic erythema similar to that type of eczema.

Opium and its alkaloids, absorbed into the system, may produce varieties of erythema (scarlatiniform, morbilliform, exudative, or a cyanotic flush). Of these the exudative is the most common. Wheals, vesicles, pustules (furuncular or carbuncular), sometimes œdema of eyelid and face, with itching, biting or tensive sensations, are not uncommon effects of these preparations; while erysipelas-like inflammations and indolent ulcerations have been noted as extreme effects.

Phenacetine is recorded as producing an erythematous rash, most marked on the extremities.

Phosphorus and phosphoric acid, from full medicinal doses, may show their effects on the skin in diffused or circumscribed redness, grouped vesicles, wheals, pemphigoid bullæ, pustules (sycosiform, furuncular or ecthymaform), purplish maculations and peach colored stains; while in persons sensitive to the drug or from poisonous doses purpuric extravasations may appear, or other lesions become hemorrhagic and bleed easily.

Piper methysticum (kava kava), which is used as an intoxicant beverage by native South Sea Islanders, is said to produce a redness and dryness of the skin, with desquamation in large or branny scales, leaving white spots on which trophic ulcers may form, resulting in scars. The dry skin may become thickened and fissures form. Some phases of the eruption are said to resemble leprosy of the skin.

Plumbum and its salts absorbed into the system may cause erythematous, vesicular, pustular and purpuric lesions.

Pulsatilla nigricans sometimes causes rubeoloid and urticarial eruptions of the skin, probably as a reflex of its more powerful action on the mucous structures.

Potassium chlorate internally has caused erythema (multiform), vesicles, papules and pustules with pruritic sensations; and from long administration, purple macules and cyanotic duskiess, worse on lip and extremities, have been observed.

Ranunculus bulbosus produces in sensitive persons a characteristic, grouped vesicular eruption, which in association with neuralgic pain simulates very closely herpes zoster. The vesicles become opaque, or they may become hemorrhagic or purulent and resemble unusual forms of vesicular erythema or eczema.

Rhubarb may produce a recurrent scarlatiniform erythema, generalized over the whole surface and followed by desquamation.

Santonin from internal use, will sometimes excite outbreaks of generalized urticarial lesions with some associated erythema and oedema of the skin. The lips and eyelids may be greatly swollen, and desquamation may follow the primary eruption.

Salicylic acid and salicylate of soda in maximum doses may cause eruptions of erythema, vesicles, bullæ, wheals, pustules, petechiæ and vibices; in one case gangrene of the legs occurred from its use. Phases of erythema multiforme are probably the nearest types of cutaneous disease caused by these drugs. *Salol* has caused urticarial eruptions.

Sarsaparilla long continued internally, may cause roseola-like macules, herpetic lesions on many parts of the skin, which, if ruptured, emit an acrid discharge. Persistent use may cause papillary or wart-like elevations of the skin.

Secale (ergot), administered internally, may cause eruption of vesicles, pustules (furuncular and anthracoid); with swelling and hæmorrhages (petechial and ecchymotic), changing into gangrene. Its effect on the cutaneous circulation may show primarily in blueness and coldness of the parts (usually on the extremities), with disturbance or loss of sensation, and finally gangrene.

Staphisagria shows its effect on the skin by miliary papules and vesicular eruptions, the latter resembling herpes and sometimes zoster occurring in the scorbutic, and the former looking something like lichen scrofulosus.

Stramonium efflorescence from internal use is a bright scarlatiniform or darker red, like erysipelas. Petechial, vesicular or pustular lesions may occur with, or as the erythema subsides.

Sulphonal, in ordinary hypnotic doses, may cause a symmetrical scarlet eruption, attended with intense itching and followed by desquamation. Purpuric lesions on the extremities and medium-sized red spots on the trunk, simulating syphilitic roseola, have been noted from its use. I have seen rose spots over the abdomen, chest and legs, nearly identical in appearance with the rose spots of typhoid fever, follow the administration in one night of eighty grains of sulphonal in divided doses for a case of protracted insomnia, incident to an attack of the grippe. The eruption disappeared within forty-eight hours, leaving no trace.

Tanacetum (oil of tansy), after absorption into the system, has produced an eruption on the skin resembling small-pox lesions.

Thuja may cause the outgrowth of papillary or wart-like excrescences, which bleed easily when irritated.

Turpentine (terebene), used internally, may occasion eruptions of bright red erythema, chiefly on face and upper portions of the body; fine papules, sometimes vesicles and pustules with itching and other eczematous features. *Terebene* has produced an abundant bright red eruption of papules with intense itching.

Valerian, in medicinal doses, has caused urticarial papules and wheals

to appear on the skin, and sometimes a central vesiculation as in erythema vesiculosum.

Veratrum viride, given internally, has caused a painful form of congestive erythema, not unlike erysipelas. Pustules on the face have also been seen as a result of its use.

The foregoing does not include all the drugs which may cause skin eruptions, nor the more subtle drug effects which may arise from small doses, which are of therapeutic, rather than diagnostic value.

Vaccination eruptions have been etiologically classified by Malcolm Morris in practical form, the correctness of which is confirmed in some degree by my own experience. His tabulation is reproduced here:

Group 1.—Eruptions due to pure vaccine inoculation:

- A. Secondary local inoculation of vaccine.
- B. Eruptions following within the first three days before the development of vesicles.
 - Urticaria.
 - Erythema multiforme.
 - Vesicular and bullous eruptions.
- C. Eruptions following after development of vesicles due to absorption of virus.
 - 1. { Roseola—like measles.
 - { Erythema—like scarlet fever.
 - { Purpura.
 - 2. Generalized vaccinia.
- D. Eruptions appearing as sequelæ of vaccination: eczema, psoriasis, urticaria, etc.

Group 2.—Eruptions due to mixed inoculations:

- A. Introduced at time of vaccination.
 - a. Producing local skin diseases.
 - Contagious impetigo.
 - Erythema.
 - b. Producing constitutional disease.
 - Syphilis.
 - Leprosy?
 - Tuberculosis?
- B. Introduced, not at time of vaccination, but subsequently through the wound.
 - 1. Erysipelas.
 - 2. Cellulitis.
 - 3. Furunculosis.
 - 4. Gangrene.
 - 5. Pyæmia.

Every physician whose observation of disease covers a period of twenty or more years will readily recall many of the simpler types of vaccination eruptions. Generalized vaccinia and erysipelas are of exceptional occurrence; syphilis, cellulitis, gangrene and pyæmia are very rare; and leprosy and tuberculosis are only possible results from infection inoculation. These and many of the other eruptions are preventable, and seldom seen in these later

days. While the near and remote sequelæ (Group 1. D.) from vaccination might, and probably will, be greatly extended.

If inoculation with vaccine virus leaves so profound an impress upon cells as to render them immune to the influence of another virus, it is not illogical to assume that the same qualitative protection against one disease may be counterbalanced by a lessened resistance against morbid influences tending to the production of other forms of disease, or beget a modified cell vitality, which induces or co-operates to induce other affections. The history of disease and clinical observation tend in some degree to sustain this inference. Admitting the truth of these views, it cannot be said, however, that the disease-producing effects of vaccinia inoculation outweigh its protective value.

DIAGNOSIS.—The immediate recognition of drug eruptions from their objective features may be exceedingly difficult and sometimes impossible, especially when they simulate the exanthemata, as is often the case. The absence of prodromic and other constitutional symptoms, or if such are present, a lack of uniformity, or order of sequence, will aid the diagnosis. For instance, the scarlatiniform eruptions of belladonna, chloral, quinine, etc., occur without prodromal symptoms, suddenly appearing without high temperature, and rapidly subsiding when the drug is suspended. The morbilliform drug eruptions may be distinguished from measles by the absence of the prodromic coryza, the continued fever with the eruption, and other symptoms of the latter disease.

The papular and pustular drug eruptions, particularly of bromine and iodine, might be mistaken for acne, variola and syphilis. The location of acne, age of occurrence, associated comedones and chronic character will usually settle the identity of that disease. When the iodic lesions are umbilicated the objective resemblance to small-pox eruption may be close, but the absence of fever and the more diagnostic constitutional symptoms of variola, together with a slower course, would serve to exclude the latter. Both bromine and iodine eruptions have been mistaken and treated for syphilis. A history of the latter and other lesions or signs of its existence can nearly always be found, and information as to whether these or other drugs have been taken can be obtained. In a case of doubt as to the nature of an eruption, it is well to inquire what, if any, drugs or medicines have been used. When some drugs have been given in full doses or for some time, they may be detected in the secretions and exhalations. Turpentine and other essential oils impart to the urine their characteristic odor; balsams administered internally may be often recognized in a patient's breath. Vaccination eruptions may be usually determined by careful attention to the history of occurrence.

TREATMENT.—A discontinuance of the causal drug or medicine is alone needed to insure rapid recovery in the great majority of cases. Occasionally the administration of an antidotal drug in small doses will hasten recovery. Local protective measures may be required where open lesions exist, to prevent possible external infection; or soothing applications to relieve uncom-

fortable irritations. The latter will, however, quickly subside, as a rule, under the influence of a drug antidote. The latter can be found in most works on materia medica. For *vaccination eruptions* see indications for *Apis*, *Crotal.*, *Fer. phos.*, *Kali mur.*, *K. phos.*, *Sil.*, *Sul.*, *Thuja*.

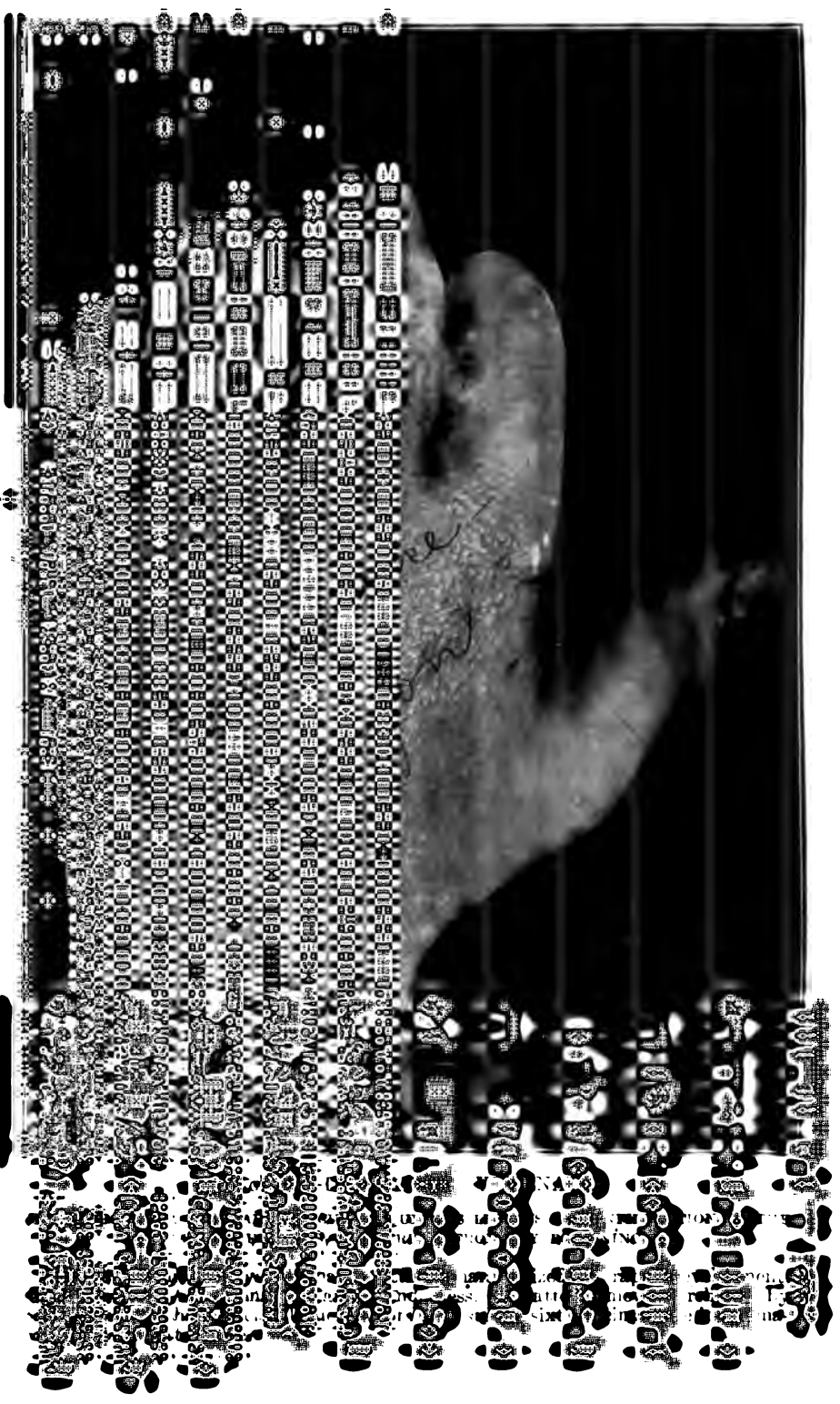
DERMATITIS VENENATA

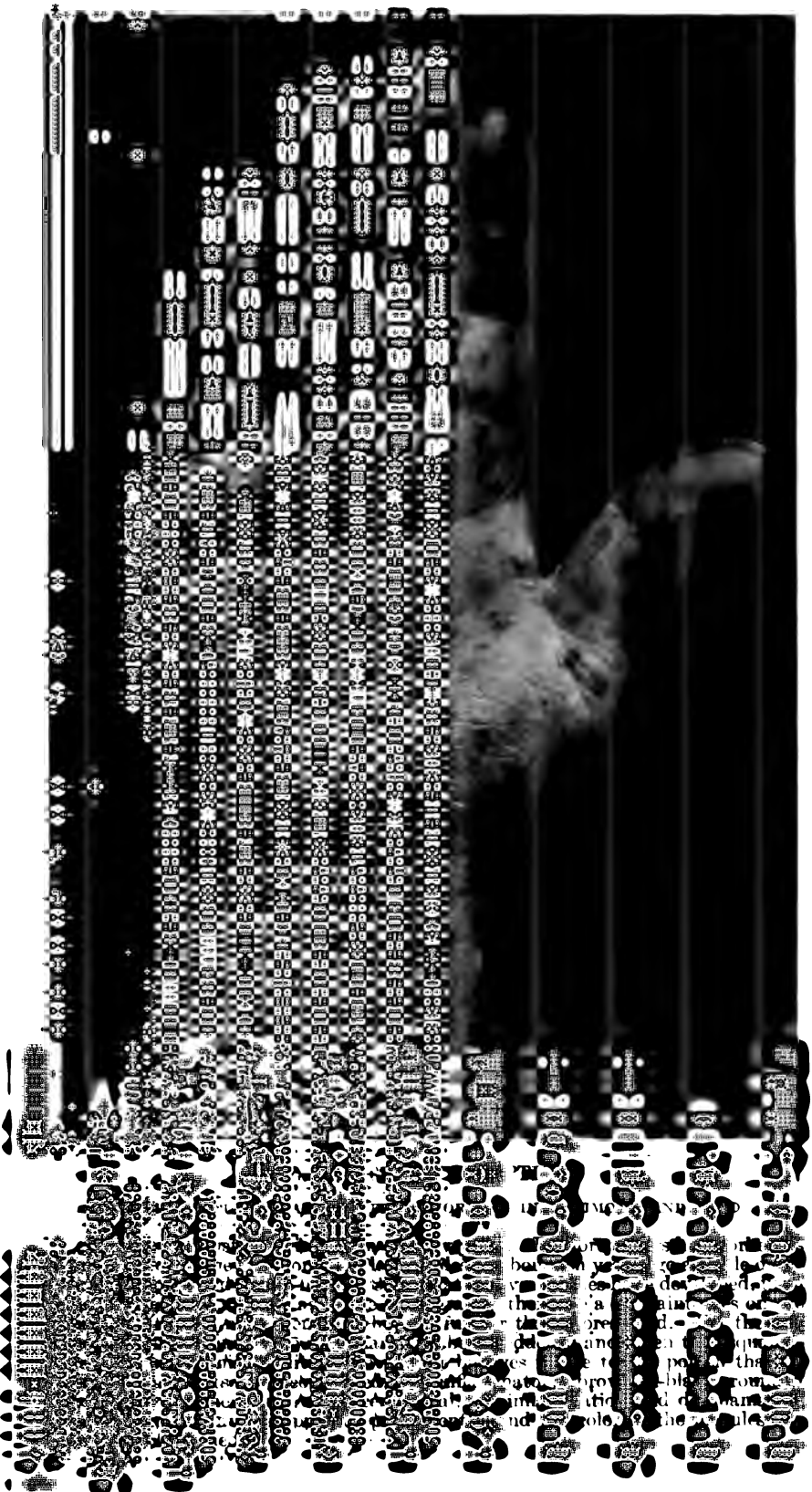
Inflammations of the skin may follow from the external effects of a large number of substances in the vegetable, animal or mineral kingdoms; and show forth in erythema, papules, wheals, vesicles, bullæ, pustules, or gangrene, depending on the susceptibility of the individual, the nature of the irritant, and the length of contact. Besides idiosyncrasy, certain diatheses, such as the catarrhal, gouty and rheumatic, render persons more sensitive to such irritants.

Common domestic applications of mustard, arnica, turpentine, etc., may give rise to considerable dermatitis. Several cases of *arnica* eruption have come under the author's observation, presenting the objective and subjective symptoms of papular eczema, though the papules were larger than in the latter disease, and there was little tendency to vesiculation. *Primula obconica*, now frequently kept in conservatories, will produce in the sensitive a more typical eczematous dermatitis. The same is true in a greater degree of intensity, from the varieties of *rhhus* (*R. toxicodendron*, *R. venenata*, *R. diversiloba*, *R. vernix*). Some persons can handle these plants with impunity; others are susceptible to its presence in a room, in burning wood, in handling perfectly dry sticks or Chinese lacquer work, the dry varnish of which contains *rhhus vernix*. In Japan, it is said, some persons cannot pass varnish shops in which this form of *rhhus* is used without feeling its effects. The *rhhus* dermatitis is characterized by deep redness and frequently swelling and œdema of the skin, with the formation of papules, vesicles, and sometimes blebs on the surface. Fig. 43 shows nearly all the lesions of an ordinary case of *rhhus* dermatitis—swelling, papules, vesicles and bullæ between the first and second fingers. This is the most frequent location of *rhhus* poisoning, often, however, spreading up the arm. It is not uncommon on the face, where it may resemble erysipelas in appearance. It is usually transferred to the genitals by the hands. In severe cases, the poisonous principle (toxicodendric acid) is probably absorbed into the system and eruptions result therefrom on distant portions of the skin, as the drug taken internally causes like symptoms.

The Virginia creeper, nasturtium, the nettle, the smartweed, cowhage, etc., in all about sixty of our native *plants* possess irritant properties.

Aniline dyes, supposed to contain arsenic, may cause dermatitis in not only those who work at their manufacture and on clothing colored by them, but also the wearers of such clothing in contact with the skin. The lesions are usually pruritic papules, in severe cases going on to vesiculation, pustulation, etc. Some kinds of *caterpillars*, in contact with the skin, cause marked





irritations. The short barbed hairs of the *brown-tail moth* cause an eruption as the result of mechanical irritation. It is supposed that these hairs become lodged in the underclothing while hanging out of doors, because the exposed portions of the body are seldom attacked. This dermatitis was epidemic in the Medford district of Massachusetts during the summer months of 1904. The attendant pruritus causes multiform lesions and consequent nervous strain.

Eczematous eruptions may be induced by *jelly fish* and other water animals, the secretions of *insects*, as in the sting of bees, wasps, fleas, mosquitoes, etc. Pathological or decomposing secretions or discharges from animals or man, coming in contact with the skin, may cause a dermatitis. Many medicinal substances, such as cantharides, croton oil, ether, chloroform, tarry compounds, formalin, resorcin, mercurial preparations, strong acids, caustics and alkalies give rise to irritations of a varying intensity.

TREATMENT.—Removal of the cause or future avoidance of it, should be the first step taken in the treatment of all forms of dermatitis venenata. Local treatment is the same as given for acute eczema.

The eruption caused by the poison-ivy is an American disease almost exclusively, and as such its treatment should be well understood. Locally, protection is necessary, and often cooling lotions, agreeable. Mild cases, however, do not need local treatment; more severe types call for the application of wet dressings of saturated solutions of *sodium hyposulphite* or *boric acid*; *suc. calendula*, ten to twenty-five per cent.; or *electrozone* one part to two parts of distilled water. *Carron oil* or some bland oil may be found an agreeable dressing. *Ichthyol* in fifty per cent. solution may be painted over the affected parts, or if the area involved is small, *collodion* may be applied. Before applying these dressings, it is often wise to open the vesicles or blebs.

For the types of dermatitis venenata, caused by the brown-tail moth, the editor has used with success an ointment containing *sulphur*, ten to twenty per cent. with resorcin, two to five per cent.

For remedies, see *Arnica*, *Cantharis*, *Graphites*, *Hepar Sulp.*, *Rhus Tox.*, *Rhus Ven.* and *Sulphur*. † *Grindelia Robusta*.

Feigned eruptions (*Dermatitis artificialis*).—Many substances named and unnamed have been used by malingerers in attempts to simulate the eruptions of skin diseases for some ulterior purpose (as sympathy, assistance or escape from duty, etc.), by hysterical persons, beggars, soldiers, sailors, prisoners or servants. The diseases most often simulated are such as can be produced easily or without prolonged effort, like erythema, pigmentations, sycosis, eczema, pemphigus and ulcers.

Thus mustard, capsicum, turpentine, cantharides and numerous other irritants may be used to simulate erythema; black-lead, indigo and soot, alone or mixed with some powder and applied to resemble chromidrosis; applications of oil or fat scented with decayed cheese or asafoetida to simulate bromidrosis. Local applications of tartrate of antimony, oil of tar and croton oil have been used to simulate sycosis and other pustular affections; thapsia to imitate erysipelas; nitric acid to produce a likeness to favus cups, pemphigus blebs, or

ulcers of the skin, caustic potash, clematis, cantharides, etc., to produce ulcers; foreign substances introduced into the skin to cause abscess. Tearing and linear scratching of the skin with needles has been done to imitate scabies, and pulling out the hair in spots to simulate alopecia areata.

DIAGNOSIS.—The recognition of feigned skin diseases will sometimes be difficult on first inspection. Certain features, however, will awaken suspicions. In a general way there may be an absence of the local or constitutional symptoms of any known cutaneous disease. The locations will very likely be within easy reach of the right hand, or, if the individual be left-handed, on parts readily accessible to that hand; the lesion will probably lack symmetry, both in distribution and outline, single rather than multiple and sharply defined. If a liquid has been employed, it may show its accidental effects from a drop or two running down the surface, or by similar drop marks or stains on near, or distant portions of the skin, fingers or clothing. When recently used the odor of a substance like turpentine may sometimes be detected.

The author has seen one case of perpetuated eruption where the odor of carbolic acid was apparent. Where sustained eruptions are suspected of being produced artificially, they can be hermetically dressed and the patient watched. The discovery of a motive for deception on the part of the patient, or of some of the substance applied, helps to corroborate other actual or inferential evidences of fraud.

When the physician is satisfied as to the nature of the imposition, it will be wiser to keep such conclusions to himself, unless marked injustice is being done; and allow the patient to recover under preventive or non-medicinal treatment, rather than to cause mental distress to patient and friends, and perhaps his own embarrassment, by an announcement of his opinion, even if capable of reasonable proof.

Trade eruptions.—Of the lesions of the skin due to occupation some might be included under dermatitis traumatica. In nearly all these cases the skin is primarily delicate in structure and sensitive to irritants, or the catarrhal diathesis exists to a degree which makes such individuals very liable to eczematous types of inflammation; other persons with less vulnerable skins remain unaffected by the same irritants of occupation. All effects on the skin of occupations are not inflammatory. The staining of the skin experienced by habitual workers on silver (argyria) has already been mentioned, and the callosities from hard manual labor are well known.

Arsenic used in the manufacture of artificial flowers, boxes, paper, dyes, etc., may cause local erythema, vesicles, pustules, and sometimes edema, ulcers or gangrene. Workers in the manufacture of *bichromate of potash* or its use by photograph reproducers, polishers, etc., may cause squamous, papular or pustular inflammation of the palms, or intense inflammation of other parts with papules, pustules and destructive ulcers.

Mercury used in making mirrors, etc., may cause destructive inflammations of the skin, but like effects follow from its over use externally or internally (see drug eruptions). Daily handling of flour by millers, bakers or

grocers may excite a dermatitis; the same is true of cement, mortar, strong soaps, etc., used by masons, bricklayers, laundresses and other laborers. The modern surgeon whose hands are frequently brought in contact with strong antiseptic solutions such as the *bichloride of mercury*, *lysol* and *carbolic acid*, sometimes experiences one of the "professional dermatoses," and, like the artisan, cannot always avoid the causes. *Formalin*, now that it is used extensively in the arts and sciences, is often noted as a cause of dermatitis of varying intensity.

Borax and *Bovista* may be considered as remedies in conjunction with mechanical protection when the cause cannot be altogether removed. In extreme cases a change of occupation is imperative.

CLASS III.—DIATHETIC AFFECTIONS

In this class are grouped cutaneous affections which manifest more or less persistent proclivity to definite types of disease, hereditary or acquired. It is not assumed that direct causes do not operate to produce this group of eruptive disorders, but whatever their source, in nearly all the proclivity is too apparent to be denied.

ECZEMA (Tetter)

DEFINITION.—An acute, or more often chronic, non-contagious inflammation of the skin, attended with severe itching, catarrhal exudations and characterized by multiform lesions, in the same or different cases, of erythema, papules, vesicles, pustules, fissures, scales, crusts, etc.

Eczema is perhaps the most common of all cutaneous diseases, certainly the most frequently seen by the general practitioner or specialist, which statistics show as averaging nearly one out of every three cases coming under the observation of the latter in this country. Very likely the habit of the sufferers from chronic eczema of seeking one after another specialist for relief may somewhat unduly swell the relative proportion.

Uninfluenced by local irritation, the disease is in some degree symmetrical in development, though often far from uniform in its limits of distribution on the two sides, especially in the so-called neurotic eczemas.

The terms *acute*, *subacute* and *chronic* cannot be used with much accuracy in reference to eczema. It may run an acute (short) or subacute (longer) course, and be either in intensity. Lasting longer than a few weeks, it is considered chronic. The primary forms—*erythematous*, *vesicular*, *papular* and *pustular*—are commonly acute in their *onset*, though indefinite in duration. Whether the *course* be short or long, or merge into secondary or chronic forms, there may occur at various times acute or subacute exacerbations in the inflammatory process. Neither does a primary form always preserve its identity throughout its duration; lesions of other varieties may more or less change its clinical appearance at one or many periods of its course. A single form of eruption may remain the same throughout an attack of eczema, an attack may be limited to certain regions; but two or more forms may exist at the same time associated together, or on different parts of the surface, and each pursue a different course, in a measure, perhaps, conforming to certain tendencies of location and the predominating kind of lesion. Hence, while it has been found impossible to describe eczema in a comprehensive way under one head, or in absolute divisions, the kind of *prevailing lesion*, and the *location* have been naturally selected as a basis for studying this polymorphous disease.

Eczema erythematosum.—This is the least common of the primary forms,

and occurs most often on the face, sometimes on the palms, soles and genital regions. It begins with red patches, which may remain isolated, or coalesce, and rapidly cover the whole surface of the face, sometimes spreading down over the neck. The inflamed skin presents a swollen, even œdematous appearance about the eyes; it is rough and slightly scaly; cracks may form and oozing occur therefrom or vesicles may appear on the surface. Again the scaliness may go on, gradually increasing in quantity until it is transformed into *eczema squamosum* or *exfoliativum*. Occasionally the eruption remains in well or ill defined patches throughout its course, and is then *eczema circumscriptum*. Beginning on opposing surfaces, as under the breasts of women, and between the genital folds, it gives rise to a muciform secretion and becomes an *eczema intertrigo*. Erythematous eczema may be associated with other forms in a greater or less degree, more especially at the border of patches of inflammation. Eczema erythematosum may be arrested at any point in its course after a short or longer duration; frequently it temporarily nearly or quite disappears, to perhaps return with renewed intensity in a short time. Thus it may persist for weeks, months or years with varying intensity. It is always attended with itching and burning, at times of an aggravating character, and is nearly always worse from marked changes of temperature, winds, etc.

Eczema vesiculosum.—This is the most typical of the catarrhal inflammations of the skin, and is also one of the most common. It begins ordinarily with sensations of itching and burning, followed by a diffused local erythema, on which, in a few hours, minute, clear, closely aggregated vesicles appear; these may enlarge in size, sometimes coalesce, rupture spontaneously or otherwise, and discharge a sticky serum which stains and stiffens linen brought in contact with it. With rupture of the vesicles, the subjective itching, etc., is somewhat relieved, but is worse when new vesicles are forming and usually at night during the whole course of an attack. Within a day or two the vesicles may cease to appear, but unlike other vesicular affections the exudation of plastic serum continues from the inflamed surface and makes the "weeping" so characteristic of moist forms of eczema. This is increased by scratching or rubbing the parts. Left more undisturbed, the fluid exudation dries into gummy yellowish crusts, which when removed show a moist surface beneath, on which new crusts soon form. In favorable cases serous exudation may cease in a few days, the color fades, and gradually the skin resumes its normal appearance; in other cases, when the fluid ceases to exude, scales take the place of crusts, and a *squamous* form of eczema may persist for a time. Or a more severe form may ensue, from increase of the inflammation and the discharge; the skin becomes intensely red and angry, with aggravations from friction and scratching, and *eczema rubrum* (*E. madidans*) is established.

In a majority of cases of vesicular eczema, however, it keeps its vesicular type; new vesicles appearing from time to time, at the margin of the patches or recurring on former sites, confined to a certain region, perhaps, or gradually spreading into new territory until a large surface is involved; very

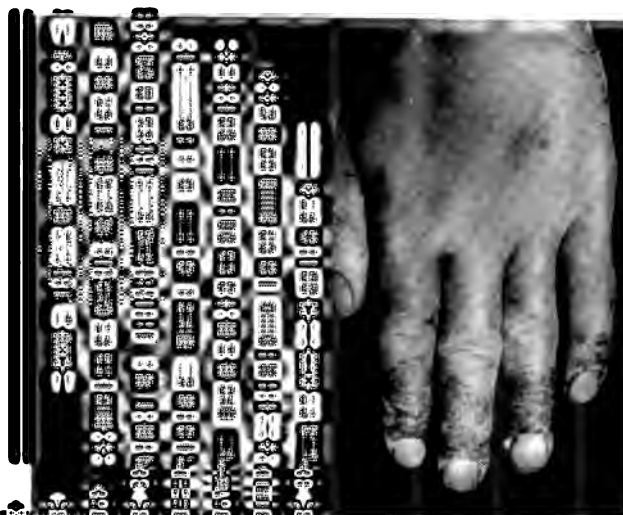
rarely it may become universal. Very commonly it is generalized. When limited to one region it is more likely to run an acute course, ending under treatment in two to four weeks. Vesicles may appear during the course of other varieties of eczema, and with some are quite common recurrent lesions.

Eczema papulosum (*Lichen simplex*).—This form of eczema occurs in pin-head sized papules, of a bright or dull red color, discrete, confluent or grouped in patches, and commonly situated on the extremities, less frequently on the trunk, sometimes generalized but never involving the scalp. From the tendency to remain papular throughout, and the frequent situation of the papules in the hair follicles, it was once thought to be a simple form of *lichen*, and in the grouped arrangement was termed *lichen circumscriptus*.

Frequently by careful search tiny vesicles can be found at the apex of some of the papules; more often they are blood capped from being torn with the fingers to relieve the intense itching. Closely aggregated papules may become vesicular, or partly so, and a weeping patch result as in primary vesicular eczema; or again, the near together lesions may become scaly, lose in a measure their papular character and form a patch of *eczema squamosum*. The latter change of form is not uncommon on the back of the hands and other parts of the extremities during the course of a papular eczema; while at the same time the isolated papules may be undergoing slow resolution, and a more or less scaly or glossy appearance of their surface is seen. The lesions of this type of eczema, however, are frequently persistent, or new papules provokingly and persistently appear as the old ones fade away.

Eczema pustulosum (*Eczema impetiginodes*, etc.).—Beginning in much the same way as the vesicular form, with local congestion of the skin, minute closely aggregated pustules appear on the reddened surface. Sometimes the lesions are first vesicular and rapidly become pustular; or the two lesions may mingle in varying proportions, presenting all degrees of vesico-pustular inflammation. When seen by the physician perhaps neither lesion may be distinct, or possibly they may be found at the border of a patch, yellowish or greenish crusts having taken the place of the primary eruption over the whole or part of the affected area. Underneath the crust the purulent or sero-purulent exudation goes on without definite limit, lasting from a few days to many weeks. On hairy surfaces, as the bearded part of the face of males, the follicles may become inflamed and complicate the process. Sometimes a *folliculitis* remains after the more common eczematous manifestations have subsided. In the strumous and cachectic the pustular lesions may be unusually abundant. Recovery from pustular eczema takes place slowly, as a rule. The inflammation and exudation gradually subside, crusts dry more completely and are easily removed or fall off, the horny epithelium is restored and finally the skin is left in its normal condition without blemish from the disease.

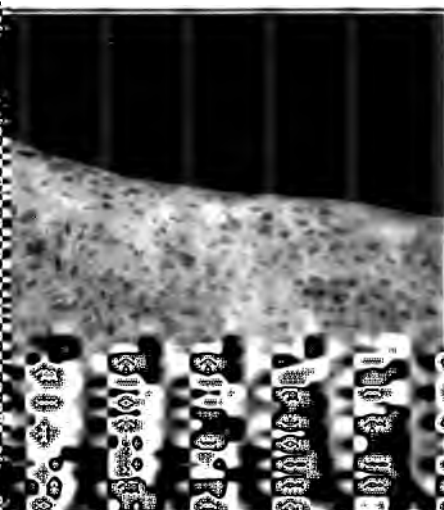
The primary forms of eczema may pass into secondary forms either on the road to recovery or as a continuation of the disease. **Eczema rubrum** (*madidans*) and **eczema squamosum** have already been mentioned. *Eczema exfoliativa* and *eczema fissum* remain to be considered.

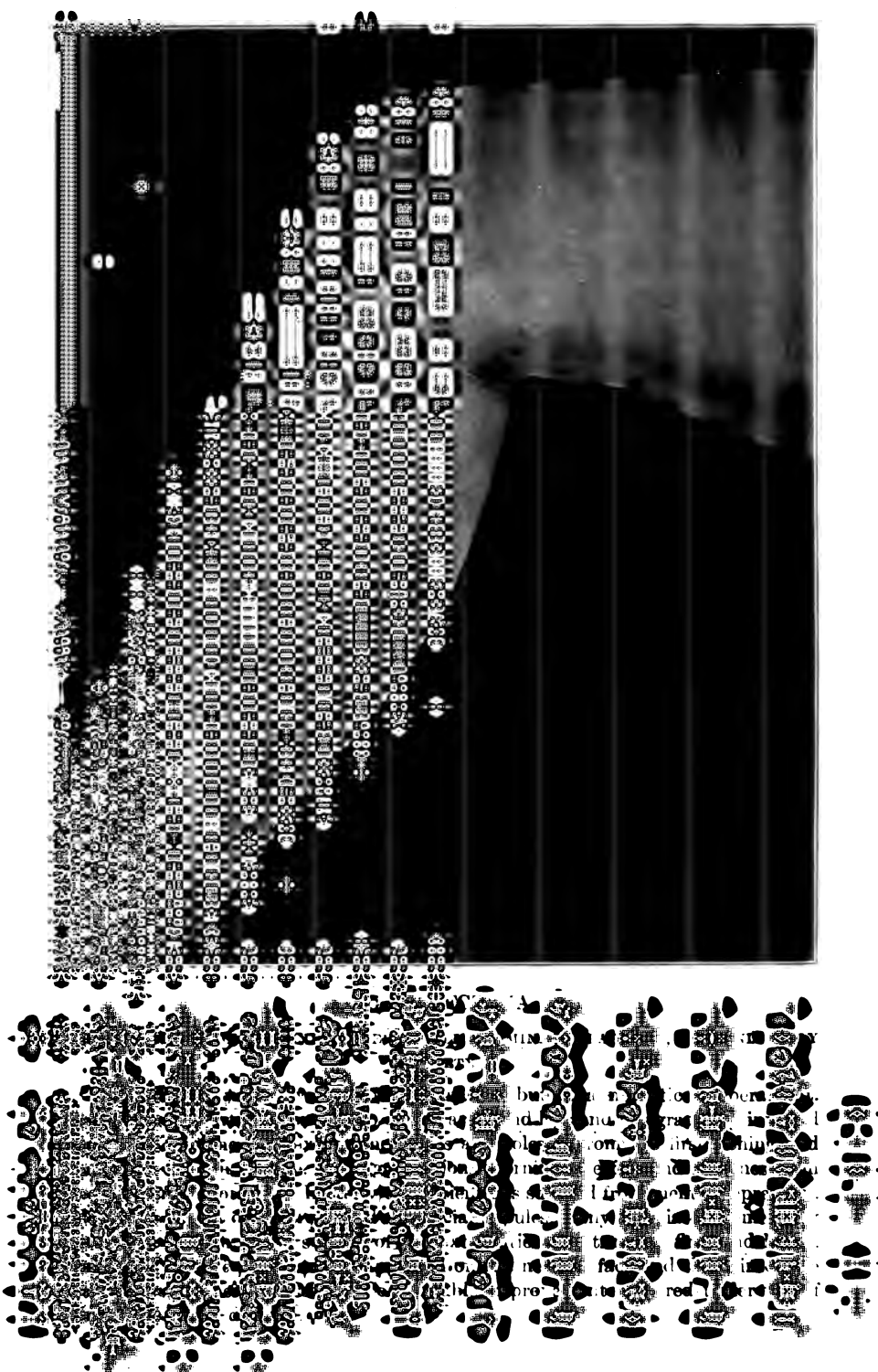


ECZEMA

PAPULO-PUSTULAR VARIETY

Duration of disease, two years. Occurrence after exposure to water. Papulo-pustular eruption on the back of the hand, showing a tendency to spread to the end of the elbow, and on the face and neck. Itching and from water. Cured by the local use of petroleum, sixth decimal.





Eczema exfoliativa.—This variety may be said to be either primary or secondary, but as it appears to be due to fluid exudation without vesiculation, and the same fluid discharge may continue after the exfoliation has taken place, it seems logical to place the special exfoliative feature as secondary or at least intermediate, and not primary. In this form the fluid exudation instead of being pushed out discretely in the shape of vesicles becomes diffused to a greater or less extent under the corneous layer of the epidermis, causing it to separate and be cast off (exfoliated). The uncovered patch of epidermis deprived of its outer layer is red, dry, or more often moistened with a serous, sero-purulent or purulent discharge. The subsequent course may be similar to the ordinary serous, purulent and squamous forms of eczema; the exfoliative feature perhaps entirely disappearing in a short time.

Eczema fissum (*E. rhagadiforme*).—In this form erythema and infiltration of the skin are the primary steps which lead to linear separation of the corneous and sometimes of the mucous layer of the epidermis, known as fissures. The discharge from these eczematous cracks in the skin is usually slight and consequently crusting is absent. They may be quite painful, especially in the parts of the skin subject to pressure or tension, as on the palms and soles, and at the flexures and extensions over the joints. Fissures heal as the congestion and infiltration in the skin disappear. The mildest form of this variety is known as *chaps* or *chapping*.

The *clinical* features of eczema are modified by *locality*, probably from the anatomical differences, exposure to changes of temperature, frictions, etc., of the different portions of the skin influencing the character and course of the eruption. The tendencies determined by location, however, are only general and may vary widely. Beyond implying these general probabilities of type, the terms employed merely indicate the limitations of the eruption.

Eczema capitis.—On the scalp the two most common tendencies of eczema in infants and children are acuteness and the purulent form of exudation. The presence of hair prevents the ready separation of the yellow or greenish crusts, which accumulate with sebaceous matter and add to the already existing inflammation. Among the poor and ignorant, neglect and the presence of pediculi in the masses of matted hair may produce a most disgusting filth eczema to sight and smell. In severe cases abscesses are very liable to form, and frequently the posterior cervical glands are found swollen, tender and occasionally suppurate.

In *adults* eczema of the scalp is most likely to be subacute, occur in squamous patches, with little or no sign of exudation. When acute, it is apt to be generalized over the scalp, which is then red and exudes a serous product; less often the exudation is purulent. In childhood eczema of the scalp is more likely to extend to the face, the younger the child.

Eczema faciei.—Eczema of the face, whether primary in occurrence or from the extension from the scalp, is most frequently vesicular, but may be purulent or exfoliative. The attendant heat and itching may lead to scratching and rubbing of the parts, causing an aggravated appearance, from the fresh

irritation and admixture of blood with the secretions. The inflammatory process is liable to extend to the ears, *eczema aurium*, where the same forms of eruption may appear, and at the back of the ears fissures may result and complicate a perhaps otherwise extensive eczema of the face. In eczema involving the nostrils, *eczema narium*, the inflammation extends to the Schneiderian membrane which pours out an excoriating catarrhal discharge on the inflamed area. The nostrils become indurated and fissured and even in children, who usually possess this variety, the course is often chronic. The lips may become involved (*eczema labiorum*), showing erythematous, vesicular, pustular and squamous lesions. The movements of mastication and talking, the tendency to lick the lips and the mucous discharges from the mouth, all contribute to perpetuate this type. When an eczema of the eyelids, *eczema palpebrarum*, is present, a true folliculitis develops among the hairs of the eyebrows, a marginal blepharitis often occurs, fissures form at the commissures and a conjunctivitis may complicate. Vesicular and purulent types of eczema may occur on the face at any age, but after middle life the erythematous type only is commonly seen in this location.

Eczema genitalium.—Here also the erythematous form commonly first appears on the scrotum or vulva. On the scrotum it may be limited to the lateral parts and unattended with vesicles or scales. The natural moisture may give a certain semblance of fluid exudation, and with the heat aggravate the inflammation. The whole scrotum and penis may be involved in some cases and some scaling or exfoliation may follow. If long continued in either sex, the unbearable pruritus, from which relief is sought by vigorous scratching, may induce more infiltration and finally result in considerable thickening of the skin. I have seen a few cases of acute vesico-pustular eczema of the scrotum so severe as to confine the patient to bed. The burning was usually marked in the early stage, to which was added intolerable itching with the appearance of the exudation; the latter was very abundant for from four to seven days, then the inflammation rapidly subsided, ending in recovery in from ten to fourteen days in all cases save one. That one persisted for nearly six weeks after the most acute symptoms had subsided.

Eczema ani.—Like eczema of the genitals, eczema about the anus begins in the erythematous form. The congestion is attended or soon followed by thickening and fissures, which may penetrate into the mucous membrane.

Eczema palmare.—When the *palms* of the hands or *soles* of the feet are attacked with eczema, the erythematous type is most commonly assumed. The surface becomes red, shiny, irregularly thickened, dry and appears seamed from increases in the natural lines of the skin. Fissures are likely to form in the lines formed by motion and when they penetrate inward to the corium may be too sensitive and painful to permit use of the parts. Sometimes the integument becomes densely thickened and inelastic like tanned leather without the presence of other lesions, *eczema sclerosum*. The tips and less often other parts of the fingers may be subject to cracks and frequently they precede those of the palms. The exfoliative form occasionally is seen on the palms (rarely

on the soles), and the acute vesicular form may occur on these parts also. In the latter case, the horny layer of the epidermis covering the vesicles does not rupture owing to its thickness, but the vesicle remains embedded in the skin, and when absorption of the fluid contents takes place the corneous roof separates, comes away as a small scale, leaving a red spot to mark its site. The same sort of lesions may occur upon the thicker portions of the palmar surface of the fingers and pursue the same course. The nails may be attacked by eczema (*eczema unguium*) and exhibit hypertrophic and atrophic changes. See *onychauxis* and *atrophia unguis*.

Eczema of the extremities is more often of the papular variety, but in the poorly nourished pustules may follow and become further distributed by auto-inoculation. Below the knee the effect of gravitation on the vascular supply is very likely to aggravate eczema in that location. Varicose ulcers of this region very often are surrounded to a greater or less extent by eczematous skin (*eczema varicosum*).

Eczema rubrum may exist and prove obstinate here, and on disappearing, occasionally leaves considerable pigmentation. Long continued eczema of the legs may rarely cause a wart-like hypertrophy of the skin, *eczema verrucosum*. The favorite locations for papular lesions of the extremities are the inner surfaces of the thighs, legs and forearms.

Eczema mammae involves the nipple and breast in nursing women and is caused by the irritation of the infant's mouth or in consequence of a galactorrhœa. It may be erythematous, vesicular, squamous or fissured in character. *Paget's disease*, which may develop from this condition, is considered among the epitheliomata.

Eczema umbilici, involving the umbilicus, is more seborrhœic in character, and will be found under seborrhœic dermatitis.

Eczematous folliculitis has been mentioned under pustular forms of eczema. It occurs chiefly on the face and may constitute one form of *sycosis*. Elsewhere it is infrequent and is never seen upon the scalp. For so-called *eczema seborrhœicum* see *seborrhœic dermatitis*.

Anomalous cases of eczema have been somewhat discussed and grouped together as **neurotic eczema**, "reflex neurotic eczema," etc. Many of these are probably only variations from ordinary forms; and most of the remainder may be *excited* through various reflex irritations—in the existence of a predisposition to the disease. Occasionally a pure neurotic eczema is seen occurring on extensor surfaces, often unilateral and persistent. One case has come under my observation apparently due to a hepatic neurosis, and cured with the relief of the latter.

Parasitic eczema is always secondary when it occurs, and is probably perpetuated by irritation from non-pathogenic flora which have accidentally found lodgment in the inflamed skin. In these cases brilliant cures may be sometimes made with local anti-parasitides.

The SUBJECTIVE SYMPTOMS preceding and attending an attack of eczema wherever found are not to be overlooked in estimating its nature and tendencies.

The *degrees* of nearly all diseases are in proportion to the extent they curtail the comfort and usefulness of the individual. A sufferer from the severe symptoms of eczema may experience much discomfort in living, without any immediate prospect of dying. It is not to be forgotten, therefore, that relief is sometimes sought more from the tormenting sensations than from the mere presence of the eruption. Whatever the underlying factors may be which produce the eczema in each case, a true conception of it must come in most instances from a study of the peculiar manifestation and conditions found in each individual suffering with it, whether located in the skin or elsewhere.

ETIOLOGY.—Eczema is no respecter of persons or age. It may occur in any condition of life, though most common in the over and under-nourished; also, it may develop at any age, but is most frequent in infancy and childhood, and the first decade of adult life. Much has been said in recent years in favor of eczema being almost exclusively due to external causes, some able observers claiming that eczema can be produced by artificial irritation of the skin. Yet no one has demonstrated that true eczema can be produced in a perfectly well person by artificial means. A dermatitis with lesions similar to those of eczema may be excited by local agents, but the other characteristics of the true disease, persistency, evolution, sensations, aggravations, etc., are lacking. Until lesions are considered synonymous with disease, arguments based on mere external likeness in lesions are of little value, and hinder rather than aid a better understanding of the causes of a cutaneous disease.

The more recent claim that eczema is a parasitic disease is not supported by any *scientific* proof. The assumption rests on the fact that indefinite bacteria have been found in lesions of eczema, and that some cases are benefited by anti-parasitic applications. These observations may be admitted as true, and the further one that eczema may be perpetuated by micro-organisms without any real evidence appearing to prove that they are primary causes of the disease. The differences between a dermatitis caused by an external irritant and an eczema excited by the same irritant rest wholly in the existence of a predisposition in the latter disease and an absence of that predisposition in the former. Otherwise the two diseases would be the same, which no one pretends to assert. It seems apparent, then, that there are both predisposing and exciting causes of eczema. What constitutes a predisposition to eczema? No one knows positively the condition of the general system which awaits local ignition (sometimes does not) to flame forth in cutaneous inflammation. That it is a state akin to that in gout and rheumatism seems probable. It may, in some instances, be the same, for those systemic diseases and eczema seldom or never exist together. That it is due to one unvarying state of constitution, as the catarrhal or hepatic, I do not believe, because there is no *definite* condition of ill being in all cases. But that a patient with a well marked case of eczema is not well is equally apparent; this may be noted in the dull color of the skin, eyes, loss of energy, changed secretion of urine, feces, etc., one or more. Until we understand more fully the intricate mechanism of normal nutrition and elimination, and the abnormal departures therefrom, the position taken

by the more moderate of the French school, Jonathan Hutchinson, H. G. Piffard and others, that eczema is primarily due to some condition of *diathesis*, is the only one which harmonizes with its clinical history, frequency of occurrence and recurrence. This diathesis may be hereditary, or slowly and at times quickly acquired. The frequency with which the stools and urine may be found changed in color and in other ways in cases of eczema, would point to the probable defect in sifting or distribution of nutritive matter to the tissues, or impairment in the elimination of effete materials from the tissues or fluids of the body. On this basis we can readily understand why eczema occurs in the plethoric as well as in the anæmic. Superfluity of nutriment may overload function as well as comparative excess of waste impair function.

Allowing, then, that some morbid predisposing state of the cells or tissues of the body exists before an outbreak of eczema occurs, and which is conveniently comprehended in the term diathesis, and which may at any time reach the verge of active irritation of nerve structure, it may require only the operation of an ordinary exciting cause to precipitate an eruption of the skin, which may continue long after the latter factor has ceased to exist.

The *exciting* causes of eczema are well-nigh innumerable, and may be internal or external. In infancy they may arise from errors of feeding resulting in gastro-intestinal irritations, from normal or abnormal dental disturbances; or from artificial or accidental external irritants of all sorts. To these may be added external irritations incident to occupations in the productive period of life sometimes called "trade eczemas." At all ages exposures to solar or artificial heat, and to cold and wet, may act as exciting causes. The same is true of vaccination, parasitic and pruritic skin diseases, pediculosis, etc. Various disturbances in the genito-urinary sphere, especially in women, may excite attacks. Occasionally mental emotions precipitate an attack of eczema. Indigestion and constipation should not be overlooked.

In all cases of persistent chronic eczema three sets of organs and their functions should always be investigated; those of *assimilation* including food supply, the *liver* (by examination of feces, etc.), and the *kidneys* by analysis of the urine, etc. Frequently some derangement in these organs or their functions will be found. Finally though the exciting causes of eczema should be looked for in all directions (inwardly and outwardly), in many cases no cause can be found, and we are compelled to assume for the time being that the predisposing factors are potent enough to cause an outbreak unassisted.

PATHOLOGY.—The connecting link between the causes of eczema and its pathological anatomy is probably always nerve irritation (tropho-neurotic), resulting in a catarrhal inflammation very analogous to the catarrhs of the mucous membranes.

The inflammatory process begins in the papillary portion of the corium, later extending into the epidermis or to the deeper parts of the corium, and in some cases downward to the subcutaneous layer of the skin. In the *papular* form the changes take place around the follicles, especially the hair follicles, the cells of the rete become separated by fluid exudation and swell up. *Vesicles*

are formed by a further liquefaction of the cells, the contents of which unite in small accumulations underneath the corneous layer. A *pustule* is formed by the emigration of leucocytes into the cavity formed by the contents of the liquefied cells. The fluid exudation instead of forming vesicles may cause a separation of the horny layer from the mucous layer of the epidermis (*eczema exfoliativa*), and sometimes leave the latter exposed, as in *eczema rubrum*. In chronic *eczema* there may be considerable changes in the corium, especially about the blood-vessels. There may be a free proliferation of connective cells with thickening of the derma. An extension of inflammatory exudation into the subcutaneous layer between the fat cells may take place, resulting in increased density, closer attachment to the skin and sometimes lymphatic obstruction. The papillæ become enlarged, elongated and sometimes papillomatous. The glands of the skin may become atrophied or even destroyed from the pressure of the hypertrophic parts of the corium. *Squamous* *eczema* of the chronic type is characterized by increased cornification and desquamation of the horny layer without any marked changes in the mucous layer of the epidermis. The increased supply of pigment particles to the epithelia of the rete is characteristic of chronic *eczema*. Irritations of the nerve-endings in the corium and rete are responsible for the many and varied subjective sensations experienced in *eczema*.

DIAGNOSIS.—The great majority of cases of *eczema* are quickly recognized by the experienced observer. At times a diagnosis may be difficult. The disease is seldom seen in its primary stage of congestion, and when observed presents nothing distinctive. It might be confounded with erythema simplex or erysipelas. With vesiculation it is different; the vesicles are minute in size and closely aggregated together, they rupture and are followed by continuous discharge, unlike the vesicles of any other inflammatory disease, such as herpes and scabies. The latter are larger, more often isolated and dry up with or without rupture. The pustules of *eczema* may be mistaken for a pustular syphilide, impetigo contagiosa, pustular sycosis and favus of the scalp. The papular form for a papular syphilide, lichen ruber or lichen planus, and papular urticaria. The squamous form may resemble tinea circinata, psoriasis, and possibly on the palms a squamous syphilide.

Erythema simplex can be distinguished from *eczema* by its distinctive hyperæmia, absence of inflammation and marked sensation of itching, its shorter duration and less tendency to appear on the face.

Erysipelas is attended with systemic fever, a deeper redness of the skin, which is shiny, smooth and has a well-defined border; if vesicles appear they are larger and not especially grouped, as in *eczema*, and desquamation only occurs after the inflammation subsides.

Herpes vesicles are larger, usually arranged in groups on a red base, located on the face or genitals and dry up without rupture. The vesicles in *herpes genitalis* may be quite small, but their other features, limited distribution and short course are sufficiently unlike vesicular *eczema*.

Scabies is practically an *eczematous* dermatitis from a definite cause, and

its multiple lesions and sensation may closely resemble the vesico-pustular and crusting types of eczema. This form of eruption found located on the backs of the hands (between the fingers) and on parts frequently and easily touched with the hands, as the wrists, axillæ, genital regions, etc., may always arouse a suspicion of scabies. If the pathognomonic "burrow" of scabies is found the suspicion is at once confirmed, but if the secondary lesions have blotted out the dotted burrow made by the *acarus scabei* there may be some difficulty in differentiation. A scattered eruption favors scabies, a grouped favors eczema. In undetermined cases, a few days of antiparasitic treatment would settle the diagnosis by curing scabies or conversely by aggravating eczema.

Pustular syphilides of the scalp ought not to be mistaken for eczema. A possible syphilitic history, offensive odor, adherent crusts and superficial ulcers underneath, or results of ulceration (scars), and the absence of pruritus are all unlike eczema.

Impetigo contagiosa eruption is sometimes very like eczema. The vesico-pustules of the former, however, are larger, more isolated, the crusts thicker and darker, and when removed the skin underneath is usually sound. *Impetigo contagiosa* is curable in from three to ten days; eczema is more persistent.

Pustular sycosis and the latter stage of follicular eczema of the beard are practically identical. At an early stage of eczema lesions are very likely to appear between the hairs, and at all stages may extend beyond the limits of the beard, unlike true sycosis.

Favus of the scalp with its sulphur yellow, sometimes powdery crusts, usually cup-shaped at some point, has little real likeness to eczema, but is to be borne in mind in making a diagnosis. Microscopic examination showing the presence or absence of *favus fungi* would be decisive.

Papular syphilides of the secondary stage rarely exist alone. They occur usually in characteristic groups of three or four; they are a darker red and larger than the eczema papule and do not itch.

Lichen ruber papulosus might be mistaken for papular eczema, and occasionally an anomalous case of eczema with considerable keratinization may present a striking likeness to one stage of lichen ruber. Commonly the unchanging, pointed, scale-capped papules of lichen ruber are distinct enough. They never become vesicular or excoriated, as may happen in chronic papular eczema. The further evolutions (confluence, scaling, etc.) of lichen ruber are totally unlike eczema.

Lichen planus papules are larger, angular, flat and purplish in color, as compared with the small, round, acuminate, brighter red papules of eczema. The excoriations and blood crusts of the latter are not present in the former.

Urticaria papulosa lesions are never grouped as in eczema, and are of short duration; wheals or a history of their presence can usually be found. *Urticaria papulosa* seldom occurs after childhood.

Psoriasis lesions do not often closely simulate squamous eczema. Patches

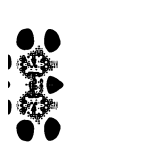
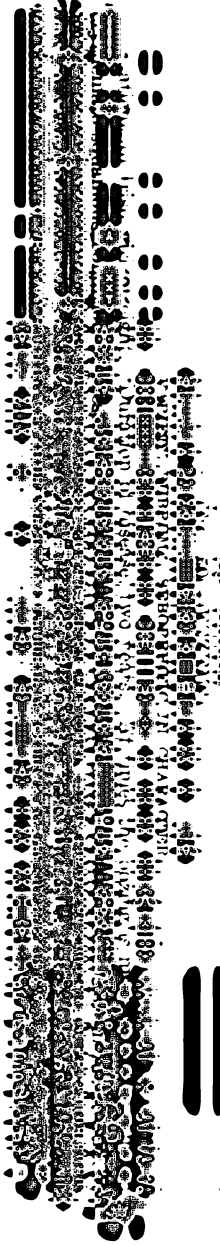
of psoriasis show a preference for the extensor surfaces, are sharply defined, more or less covered with pearly white scales, which, if forcibly removed, may show bleeding points. Squamous eczema shows a preference for the flexor surfaces; the patches are not sharply defined, the scales are darker, more adherent, and when removed may expose a moist surface. There is little or no itching with psoriasis.

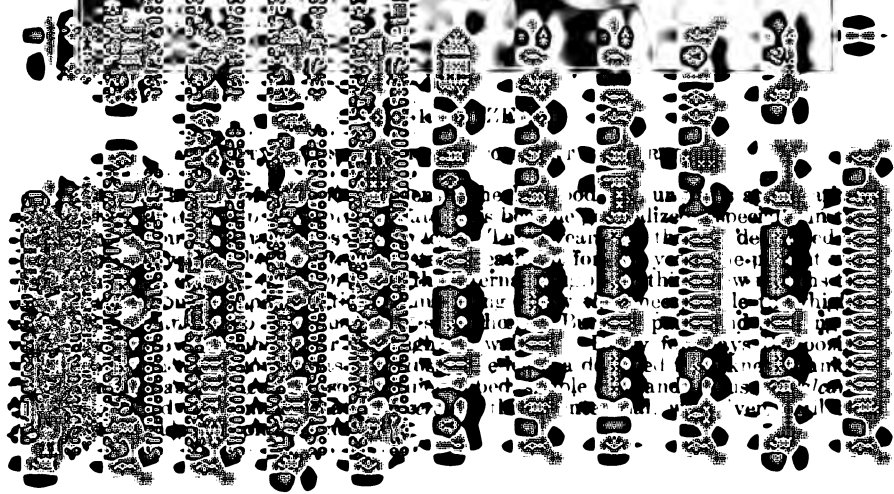
Tinea circinata may rarely be confounded with squamous eczema. Commonly its asymmetrical distribution, sharply defined margin, probable history of contagion, and in typical forms its outer circle of papules or vesicles and clear center are plainly different from eczema. When a patch of ringworm is uniformly covered with scales and no typical lesions are found, the microscope may be needed to settle the differential diagnosis.

Squamous syphilides will nearly always show other signs of syphilis, either past or present, in the way of scars or recent lesions, and will often give a history of infection. Absence of subjective sensation is a distinction from eczema.

PROGNOSIS.—Every case of pure eczema is curable under judicious and persistent treatment. Left alone, it tends to continue indefinitely. Its duration under treatment depends on the acuteness of the attack, and the ease with which the causes can be removed if ascertained. In chronic cases where the proclivity is well marked, a knowledge of the peculiarities of the predisposing diathesis, if obtainable, is an encouragement to successful treatment. It is to be remembered, however, that the skin may be left too disabled to recover unaided, even after the diathetic manifestations may have ceased. The more extreme changes in the skin, such as great induration, elephantiasic thickening, or papillary hypertrophy, may be very slow in disappearing. Still it must be extremely rare that all evidences of uncomplicated eczema cannot be made to fade away.

TREATMENT.—Causal methods of treatment are first in immediate importance. If no exciting factors are apparent, they should be searched for in all directions, and if found, removed when possible by negative or active means. Causes may ramify into the physiological, pathological or therapeutical fields. The physician who from habit looks beyond the lesions to the primary and earlier sources of disease wherever located in the system, as well as into the external sphere, will gain the best conception of an eczema, and be able to formulate the wisest measures of treatment. At the same time it must not be forgotten that a sufferer from eczema looks for *relief* as well as *cure*. These ends may require the combined physiological, mechanical and pathogenetic methods of therapeutics, and one or more may include the causal also. Thus in a case depending on a retention diathesis, physiological regulation of food (solid and liquid), exercise, etc., possibly mechanical stimulation (hand or vibratory massage) of excreting organs, etc., and the administration of a constitutional remedy may all aid in removing the causal diathesis. It would be impossible to indicate all the details of etiological treatment. They will readily suggest themselves to the well-informed general practitioner as the





cause or causes are ascertained in a given case. The more important point here is to emphasize the necessity of habitually seeking for the original and contributing causes, and of using logical means for their removal. Such means will often fall within the lines of definite methods of treatment, as before suggested.

Physiological (hygienic) treatment consists in the regulation of healthful living as bearing upon the correction of a morbid state. Often this method looks beyond a temporary effect to the restoration of tissue and functional vitality, and consequently to cure and prevention, whether through increased elimination or absorption.

The quality and quantity of food frequently needs regulation. If elimination is defective, a more vegetable and less animal diet is advisable, with such fruits as are readily digested by the individual patient. Thus the function of the liver, intestines, kidneys, etc., are facilitated. In the author's experience it is quite common to find those suffering from eczema fond of meat, even when leading sedentary lives. Rarely will it be found necessary to advise a more nitrogenous diet to increase assimilation of constructive material, except in infants and children to meet the demands of growth; and then it is usually a change of quality that is needed, sometimes even with nursing infants. Regulation of the fluids drunk is often as important as attention to the more solid articles of diet. Less fluid is demanded with a largely vegetable than with a largely meat diet, but unimpeded elimination requires a sufficient daily ingestion of water or watery fluids. I have often found in generalized eczema a high specific gravity of the urine and a history of too much abstinence from water. It is not alone the kidneys which suffer from want of a normal supply of water, but the liver, intestines and glandular structures generally as well. Habits of bathing may err in the direction of neglect, or occasionally in the way of excess. Long contact of water nearly always aggravates eczematous inflammation, and sometimes it is wise to modify it by the addition of alcohol, salt, or some mild alkali, for the bath, which should be brief and the skin quickly dried. Bathing, however, like many useful habits, must be regulated to the needs of each individual. Very hot water can sometimes be employed both for its cleansing and therapeutic effects. Used for a few minutes as hot as can be borne, it often relieves irritation and has a beneficial reaction. Exercise is often very difficult to regulate for the eczematous, and yet it is almost a necessity to further the transit of materials in and through the system, whose retention and accumulation are believed to be a fundamental cause of eczema. After considerable experience, I am convinced that bodily exercise must be prescribed in connection with some other duty, occupation or pleasure or the prescription will not be taken long enough to be of special benefit. Ways will suggest themselves to a physician best suited to each one. Passive exercise is not often required, and then is easily regulated by methods of rubbing, manipulation, etc.

Fresh air and ventilation, especially of sleeping rooms, sometimes demand attention. There is no question but what sewer gas or coal gas and the

accumulated emanations from the body aggravate or even produce inflammations of the skin, as well as cause other diseases.

While occupation can seldom be absolutely changed, advice may frequently be given looking to the possible avoidance of the more harmful influences or exposures.

Clothing worn may be too warm, too thin, or too irritating. As a rule, flannel should not be worn in contact with an eczematous surface; occasionally it may be worn over linen or cotton, and sometimes may be tolerated next to the skin. The foregoing do not include all the ways of living and habits that may need correction. The use of stimulants, tobacco, etc., while not physiological primarily, may have become a fixed habit to be wisely controlled in cases of eczema.

In some cases of eczema no untoward departure from physiological living will be found. The diathesis is hereditary or latent, the habits of life can be little improved upon, and if changed, result in no benefit. Such cases are to be cured chiefly by pathogenetic methods.

The *local* treatment of eczema has in view cleanliness, the protection and soothing (relief of itching) of an inflamed, sometimes denuded and exposed surface of the skin, which might become more irritated from contact with the air, water, dust, frictions, alternations of temperature, parasites, etc. Simple mechanical protection of the surface may be given by applications of non-medicated ointments, oils, pastes, varnishes, bandaging, etc. When advisable, a non-irritating antiseptic or antiparasitic can be incorporated in some protective preparation. There are many substances which may be used singly or combined to mechanically relieve surface irritation, afford protection, or even to produce mild antiseptic and antiparasitic effect, without (in appropriate form) producing any effect on the general system or interfering with the action of internal remedies. On the contrary, the beneficial effect of a remedy is often more apparent when the local surface is freed as much as possible from external irritation. For a list of protective applications see "Principles of Treatment" in Part I.

The choice of different local applications may be determined by the *location* and character of the eruption.

Eczema of the scalp.—In children with eczema of the scalp the hair should usually be cut short; the crusts softened with applications of fresh lard or oil, a close-fitting cotton cap or a handkerchief tied about the head in the shape of a cap, being worn for several hours. Then the crust can usually be removed with a coarse comb. Subsequently the whole head may be cleansed with a mild and moderately hot solution of *borax*. After immediate drying of the surface, some simple oil or fat should be *lightly* applied and a fresh cap adjusted. A most elegant oily application may consist of *lanolin*, one part, to four of *sweet almond oil*. Olive oil, two parts, partly emulsified with lime water, one part, does well in some cases, but any simple fat can be used except the petroleum products. If the lesions are not extensive treatment can be carried out without cutting the hair. These applications for protecting the

surface should be repeated once or twice daily, without, however, a too frequent use of the solution, perhaps every two or three days. If pediculi complicate the local disorder, antiparasitic methods should be first employed to remove or destroy the parasites and their ova (see pediculosis capitis). Occasionally lathering the scalp with a mild antiseptic soap (like *boric acid* five per cent.), and washing it off with hot water, may be substituted for the solutions. The object, however, is not so much the complete removal of the oily application as it is to remove the accumulated exudations of the disease. Even wiping off the old application with gauze and renewing with fresh oil will often suffice for days after the first dressing.

In the later and dryer stages, the *oxide of zinc* ointment, sometimes diluted with a fourth part of sweet almond oil, makes a good protective dressing.

No medicinal applications should ever be applied to the scalp of a child suffering with eczema. Disastrous effects have followed the indiscriminate use of such means. Simple removal of the irritating products of inflammation, cleanliness and mechanical protection, together with the administration of the indicated remedy, are not only safer, but usually more effective.

In *adults* eczema of the scalp is seldom acute or gives rise to much exudation. If not attended with much irritation or crusting, local measures are not essential to a cure. When needed, the hair over the patches is separated, the crusts or scales loosened by friction with any bland oil or fat, and after being washed or wiped off the following application may be rubbed on with the end of the finger:

R	Boro-glyceride (50%).....	3 2.
	White wax,	
	Lanolin.....	ss 3 1.
	Fresh lard.....	3 1½. M.

This may be repeated once or twice daily, as required, the preliminary frictions with oil being omitted. Another excellent application, recommended by Piffard, is as follows:

R	Castor oil.....	3 ½.
	Alcohol.....	3 2½.
	Eucalyptus oil.....	3 1½. M.

He advises the employment of a small oil-can to deposit a drop in the parting of the hair over the patch, which is well rubbed in with the finger; then another parting of the hair made and treated as before, until the whole patch has been covered. In this way only so much oil as is needed is used, and the hair away from the patch is not impregnated with it. Either of the foregoing can be used less and less frequently, as improvement goes on. If much fluid exudation is present or intervenes, the application should be discontinued and protection given to the part in the manner suggested for similar cases in children.

Eczema of the face in infants requires protection of the surface by simple ointment or Lassar's paste; and when severe or extensive, the wearing of a

linen or cotton mask over the parts, provisional openings being made for the eyes, nose and mouth. After the acute symptoms have subsided weak boric acid ointment or oxide of zinc gives a good protective dressing. If the *ears* are affected the mask should cover them, and it is well to sterilize the surface of the ears with a solution of peroxide of hydrogen (16 vol., sol. 1-5) before applying an oleaginous protection. When the auditory canal is involved, small tampons smeared with a simple ointment can be left in the canal. Eczema affecting the *eyelids* demands special care in softening and removing the crusts with bland oil, followed by a very light application of benzoated lard or *resorcin*, one part to one hundred of simple unguentum. When the *lips* are affected, the tendency to crack may be largely averted by frequent applications of bland oil or *cold cream*, and on the outer borders small breaks in continuity can be touched lightly with a soft paste. If the *nostrils* are involved a *boric acid* ointment can be used to remove the crusts, or a weak *citrine* ointment for the same purpose. Neumann employs *bougies* made of two grains of zinc oxide with sixteen grains of cocoa-butter for this condition when it extends well up into the nares.

In **adults** acute moist eczema of the face may be treated in the same way as in childhood. For the more usual erythematous eczema of the face and neck, the substitution of *alcohol* for water in bathing the face, and the application at night (or day if convenient) of a simple ointment, is about the extent of useful local measures. Increased antipruritic effect can be given to oily applications by the addition of one to five per cent. *carbolic acid*. Eczema of the *bearded* part of the face may become follicular. Here the early use of a solution of *peroxide of hydrogen* is to a certain extent preventive. If pustules form about the hairs, the hairs should be extracted, as their loosened position in the follicles act as mechanical irritants. Repeated shaving is advisable for men, though painful at first. Hot *borax* solution or dilute *electrozone* may be used in place of the peroxide if more conveniently at hand. Boric acid ointment can be applied at night, and if the patient needs to go about during the day, boric acid and starch powder, dolomol or compound stearate of zinc powder can be lightly dusted or rubbed over the surface. As in all eczemas the appropriate internal remedy is important.

Eczema of the male genitals is most often seen in the chronic form after thickening of the dependent portion (scrotum) has taken place. When an eczema is once started here three conditions operate to perpetuate it, namely, warmth, moisture and dependent position. The first objects of local treatment should be to neutralize the effect of these causes which cannot be wholly removed. Careful cleansing, the application of a hygroscopic powder and the use of a suspensory bandage are the means to be employed. Later a protecting ointment covered with a few layers of antiseptic gauze and the supporting bandage will be serviceable. Indicated drugs will then act with greater promptness. In old obstinate cases a lining of sheet rubber inside the bandage gives relief and helps reduce the thickened skin, or local pathogenetic treatment with tincture of *iodine*, *soft soap*, *diachylon* ointment or a one per cent. solution of

formalin, may be cautiously used until an acute attack is worked up, followed by a soothing application. The patient should always be advised of this proposed course and his assent obtained if necessary. In acute forms rest in bed is sometimes essential. Occasional applications of *boric acid* water, as hot as can be borne and for only a minute at a time, followed by the boric ointment before mentioned, often give much local relief. If the pruritus is severe and not relieved by an indicated drug, three to six per cent. of *carbolic acid* in glycerine and water may suffice. Or

R. Pulv. calamin. preparat..... ʒ 2.
 Glycerini ʒ 4.
 Aq. rosæ..... ʒ 1.
 Milk of magnesia q. s. ʒ 4.
 M. Sig.—Apply after bathing parts with hot water.

Or

R. Liniment. calcis..... ʒ 4.
 Acid. hydrocyanic. dil..... ʒ 1.
 Liq. plumbi subacetat..... ʒ 2.
 Glycerini ʒ 2.
 Aq. rosæ q. s. ʒ 8.
 M. Sig.—Cream, and apply on strips of soft linen.

When the pubic region is affected, shaving is often necessary, before lotions or ointments can be applied. If the *penis* is involved the inflammation is usually milder than on the scrotum, but can be treated so far as practicable by the same protective means. Persistent eczema of the genitals in either sex should lead to an examination of the urine for the presence of sugar or other irritating qualities of the secretion, also as to dribbling of urine from bladder affections, or discharges from the mucous outlets.

Eczema of the female genitals (vulva) is seldom as severe as in males, and may often be relieved by internal medication alone, being more frequently reflex in nature and therefore calling for treatment of other parts. Locally ointments should not be used. Either equal parts of *alcohol* and *rose water*, or weak solutions of *peroxide of hydrogen*, *electrozone* or *permanganate of potash* will be found effective and the least objectionable applications for use as needed. Intense pruritus may require the *carbolic* or *calamin* solutions noted above. A T-bandage may be useful in some cases.

Eczema of the anus usually develops slowly, and relief is not sought for at the hands of a physician until it entails considerable annoyance. Then the parts may be thickened and fissured, the fissures perhaps extending into the mucous membrane. In the worst form they need to be treated as other anal fissures. Where cracks do not exist to any extent, brief applications of very hot water followed by touching the parts (including depressions) with a ten volume solution of peroxide of hydrogen, and then smearing on a simple fat, does much to add to the comfort. For the thick puckered eczemas with concealed fissures I have found no local measures so beneficial as to immediately after the application of the peroxide snip the edges of the fissures or the folds with

fine-pointed scissors, and then pack the same with *thiol*, *orthoform* or *aristol* on absorbent cotton held in place with a T-bandage. If necessary one may cocainize the parts before using the scissors, but the cutting is done so quickly that not much pain is experienced. The procedure can be repeated every four or five days if needed. Internal remedies certainly have a remarkable influence over eczema of the anus, and hot water may only be needed locally in mild cases. For intense pruritis, the *carbolic*, *calamin* or *hydrocyanic* lotions, before mentioned, may be used.

Eczema of the palms and soles presents features different from other parts, owing to the thickness of the skin on these surfaces and their habitual exposure to pressure and tension. Hence excessive thickening and fissures may result. Too much should not be attempted locally, and reduction of the thickened epidermis with file, pumice stone or sand paper seems to the author positively harmful by exciting more subepidermic inflammation. Small prominent patches of corneous thickening of the *soles* of the feet may be shaved off with a knife, the fissures filled with simple ointment, and then applications made to the surface of a twenty-five per cent. solution of *peroxide of hydrogen*. This can be used at intervals of four or five days, a simple protective ointment being rubbed in during the interval. A more comfortable method is to paint the fissures with *thiol*, and then apply Unna's *salicylic acid plaster* over all the thickened skin. This can be renewed every three or four days until the thickened epidermis has separated and comes away. Later the parts may be kept soft by inunctions of oil while the internal remedy is curing the actual disease. On the *palms*, owing to the frequent motion, the disease is at best obstinate, and the most reliance is to be placed on the internal remedy and the use of rubber gloves. Gentle inunction of a small amount of weak (two per cent.) *salicylic acid* ointment several times a day often works well. Unna's *gelatine paste* is also serviceable here, as it stays in place covered with thin rubber tissue, and can be renewed every day or two. Cotton gloves may be worn at night.

Chapping of the hands or face is really a form of dermatitis, due to wind or weather, and can usually be relieved by the application of *vaseline*, *cold cream* or some simple *oil* immediately after washing and upon retiring. Equal parts of *tincture of benzoin*, *glycerine* and *alcohol* may be used not only as a preventive but as a curative agent in mild cases.

Eczema of the nails only needs an occasional protective application. *Oleate of tin* ointment in about ten per cent. strength, as recommended by Shoemaker, is good and improves the appearance of the nail. The weak *salicylic acid*, before mentioned for the palms, can be used instead several times a day as convenient.

Eczema of the extremities may be acute or chronic, dry or moist. The strictly papular form requires no local treatment. Acute moist forms require *rest*, applications of a dilute solution of *peroxide of hydrogen*, followed by simple ointment and covering with loose absorbent gauze or bandage. The dressing only needs renewal as the comfort of the patient demands. The ob-

jects are to give as much local comfort as practicable by protecting the surface, without immediately checking the exudation. Chronic types of eczema of the *arms* may be occasionally treated with stronger solutions of *peroxide of hydrogen*, subsequent protection with *boric acid*, *gomenol* or *calendula* ointment and as many turns of a gauze bandage as needed to completely protect and support the parts. The bandage should be constantly worn as a rule; but renewed with the whole method of dressing as often as may be required. Many cases of eczema of the *legs* can be managed in the same way as indicated for the arms. On the lower legs, eczema may be kept up by varicosis, and rest, in the horizontal position is of very great assistance. In most cases, however, prolonged rest cannot be carried out, and support as well as protection may be given by a firm bandage after applications of *peroxide* and simple ointment. Several layers of sheet lint or gauze can be placed under the bandage if there is much exudation. *Liquor carbonis detergens* one to three per cent. solution, is a safe and useful lotion for eczemas involving large areas, especially of the extremities. Varicose ulcerations demand special treatment which is to be found under the proper heading. Internal treatment should always take cognizance of the varicose state of the skin and often the right remedy will show a surprisingly quick effect, even without any local attention.

Local pathogenetic treatment of eczema is not often called for. For the author's views on this subject the reader is referred to the general discussion of therapeutic methods in Part I.

A multitude of simple and compound preparations have been from time to time advised for their various effects on the inflamed skin. Many of them are useless, more detrimental so far as complete cure is the end sought, and a few may be helpful in chronic inflammations attended with more or less infiltration and hypertrophy of the cutaneous tissues. Sufficiently strong applications to a thickened part to produce a temporary (slight or severe) aggravation may be followed by a reaction which promotes resolution and leaves the parts a step nearer recovery. Such effects, occasionally repeated, aid the internal remedy and hasten a cure in suitable cases. Thickened patches of eczematous skin in the flexures of the elbows, knees, and less frequently elsewhere, can be made to clear up in reasonable time in no other way. For the corneous thickening salicylic acid has been already named, but its action for that purpose is not deemed pathogenetic.

Among semi-liquid and liquid preparations, soft potash soap or soft *green soap* alone, or with one or two parts of alcohol (tinct. of soap), serves the purpose very well. Either form can be applied to an indurated patch with friction for a few moments, and when the irritant effect is experienced, the part may be washed with hot water and a simple ointment applied. This may be repeated every three or four days, using a weaker or stronger application of soap as may be judged best from the first effect, until the epidermis is reduced in thickness. If fissures exist they may be filled with a firm ointment to give them partial protection from the application. A powerful and immediate pathogenetic effect may be obtained by painting over the thickened

epidermis with *liquor potassæ*. A serous exudation occurs at once, lasting a few minutes. Then the surface is wiped dry and any simple protecting ointment smeared over the part and covered with a bandage. This may be repeated every few days as directed for use of the soft soap or tincture. Tincture of *iodine* repeatedly painted on a patch of indurated skin until evidence of irritation is produced is sometimes useful, or, still better in some cases, is five per cent. of iodine in collodion applied every other day. For small patches of chronic infiltration on covered parts, five to ten per cent. of *chrysarobin* or *pyrogallol* in traumaticine may be found a convenient and serviceable agent painted on every three days. This drug should always be used cautiously and not too frequently. For the purpose intended, the above applications, judiciously employed, are as beneficial as and more directly under the control of the practitioner than additional preparations would be. Formulas containing some form of mercury have been long in use and are still frequently employed. In the writer's experience they are only of superior usefulness in eczema which has become *parasitic*. The *ammoniated mercury* in five to twenty grains to the ounce of vaseline or the mild chloride in ten to thirty grains to the ounce are cleanly and serviceable applications. While a certain absorption into the skin is essential for their best effect, if the surface involved is large care must be taken not to use them in sufficient quantity or frequency to produce salivation. Other anti-parasitics can be substituted for the mercurials or alternated with them, such as iodine in collodion or tincture; *beta naphthol*, two parts, to one part of prepared chalk and twelve parts of fresh lard; and when there is infiltration without much exudation, salicylic acid ten grains to an ounce of collodion or simple ointment. It is often necessary to control the persistent itching present in most cases of eczema; to this end, *carbolic acid*, *calamin*, *thymol*, *menthol*, *dilute hydrocyanic acid* or *orthoform* may be incorporated into lotion or ointment and used when necessary. *Hot water* should always be given a trial and often will provide an efficient anti-pruritic, especially if *bicarbonate of soda*, one grain to the ounce, or *hyposulphite of soda*, three grains to the ounce, be added.

Whatever local application may be used in treating eczema, it should be for a definite purpose, and when that is attained a recourse to simple protective methods will usually bring about the best results.

Galvanism has been used with good effect in a few instances where there was pronounced localized induration. An impetus to recovery has been given by the application of the negative electrode of the galvanic battery, every three or four days, using two to twenty milliamperes. The *static spark* may be of similar service, but this form of electricity serves its best purpose as a general nerve stimulant. The *high frequency currents* through the vacuum electrodes applied at a distance of a quarter of an inch to the eczematous surface, for one to five minutes, twice a week, have afforded a safe means of hastening the resolution of indolent patches, causing general stimulation and exerting a varying amount of anti-pruritic and germicidal action. The editor has noted pronounced benefits following the use of the high frequency

currents in thirty-six cases of eczema (sub-acute recurrent or chronic types) and occasionally cures have resulted from this agency alone. Acute eczema does not call for electro-therapeutic treatment. Cautious use of the *Röntgen rays*, exposures varying from three to ten minutes at a distance of five to ten inches from the tube, has given relief where all other methods have failed. The editor has seen the sclerotic and verrucose types of eczema yield to the X-rays. The *unipolar X-ray tube* appears to be particularly well suited to some stubborn eczemas especially of the hands and face. It may be applied for two to ten minutes daily or at longer intervals.

Finsen and his associates do not claim that *phototherapy* has accomplished spectacular results in eczema, and at the present time, although cases have been reported as cured, it can hardly be said that the method is superior to radiotherapy. *Radium* in 25,000 and 200,000 radio-activity has been used in treatment of ten cases of eczema by the editor, with exposures varying from five to forty minutes, every second, third or fourth day. Relief of the pruritus was accomplished in four instances, but no further results were noted.

Internal pathogenetic treatment is of the greatest importance, and is only placed last in order in conformity with the general plan. All the types of cutaneous disease which are believed to depend on an underlying proclivity, state of constitution or diathesis call frequently for the administration of so-called tissue drugs, which may have a very wide range of action impossible to formulate into indications closely corresponding to many individual cases of disease. The more general scope of the remedy and some of its special peculiarities simulating the manifestations of eczema is all that is practicable within reasonable limits.

The subjoined repertory may assist in selecting indicated drugs from the group in the therapeutic supplement of this section.

CONDENSED REPERTORY FOR ECZEMA

LESIONS

Erythema (redness).—Am. carb., Bell., Benz. acid, Colch., Comocladia, Crotal., Crot. tig., Dulc., Hyds., Jug. cin., Kali bichrom., K. iod., Led., Lyc., Merc., Mez., Nit. acid, Puls., Rhus tox., Sil., Thuja, Zinc.

Papules.—Anacard., Ars. iod., Benz. acid, Bov., Bry., Carbol. acid, Caust., Clem., Comocl., Coni., Dulc., Fago., Graph., Hepar, Hyds., Jug. cin., Kali bichrom., K. carb., K. iod., Kreso., Led., Lyc., Mangan., Merc., Mez., Mur. acid, Nat. mur., Nit. acid, Nux vom., Olean., Pet., Puls., Rhus tox., Rumex, Sepia, Sil., Staph., Sul., Tel., Thuja, Zinc.

Vesicles.—Bov., Bry., Cal. carb., Canth., Caust., Chel., Clem., Coni., Corn. circ., Crotal., Crot. tig., Dulc., Graph., Kali iod., Kreso., Lyc., Mangan., Merc., Mez., Mur. acid, Nat. mur., Nit. acid, Oleand., Pet., Psor., Puls., Rhus tox., Sepia, Sil., Staph., Sul., Tel., Thuja, Zinc.

Pustules.—Ant. crud., Ars. iod., Bov., Cal. carb., C. sulph., Clem., Colch., Coni., Crotal., Crot. tig., Graph., Hyds., Iris ver., Kali bichrom., K. iod., Lyc., Mez., Mur. acid, Nat. mur., Nit. acid, Nux vom., Oleand., Pet., Psor., Puls., Rhus tox., Sil., Staph., Sul., Thuja, Zinc.

Erythematovesicular.—Arnica, Rhus tox.

Papulovesicular.—Arnica, Am. carb., Ars. iod., Baryta carb., Carbolic acid, Led., Rhus tox.

Papulopustular.—Anacard., Baryta mur., Berb., Cal. fluor., Carbolic acid, Caust., Chel., Hepar, Kali iod., Merc. biniod., Rumex.

Vesicopustular.—Cal. fluor., Kali mur., K. sulph., Psor., Viola tric.

Squamous (Scaly, dry).—Alumina, Ars., Cal. fluor., Cup. ars., Graph., Hydrocot., Kali carb., Kali phos., Kreso., Merc., Mez., Nat. mur., Rhus tox., Sul., Thuja.

Crusted.—Cal. fluor., C. sulph., Clem., Dulc., Graph., Merc., M. biniod., Mez., Nat. mur., Nit. acid, Pet., Psor., Rhus tox., Sul., Viola tric.

Fissured.—Kreso., Nat. mur., Nit. acid, Pet.

Ulcerative.—Kali bichrom., Merc., Mur. acid, Nat. mur., Nit. acid, Sil.

Warty or fungoid.—Colch., Kali iod., Nit. acid, Staph., Thuja.

Gangrenous.—Conium, Crotalus.

COURSE OR TYPE

Acute.—Am. carb., Bell., Canth., Crot. tig., Jug. cin., Rhus tox., Thuja.

Chronic.—Alumin., Ars., A. iod., Crotal., Hydras., Hydrocot., Kali carb., K. mur.

LOCATION

Generalized or not characteristic.—Anacard., Ars. iod., Baryta carb., Colch., Fago., Lyc., Psor., Puls., Rhus tox., Sil., Sul., Thuja, Zinc.

Face, Ears and Head.—Am. carb., Ant. crud., Ars. iod., Bov., Cal. carb., C. phos., C. sulph., Canth., Carbol. acid, Chel., Clem., Comocl., Coni., Corn. circ., Crot. tig., Dulc., Graph., Hepar, Hydras., Hyperic., Iris ver., Kali carb., K. iod., Kreso., Merc., Mez., Nat. mur., Nux vom., Oleand., Pet., Puls., Sepia, Staph., Tell., Vinca min., Viola tric.

About Mouth or Nose.—Amt. crud., Caust., Mur. acid, Nit. acid.

Neck and Shoulders.—Carbol. acid, Clem., Hepar, Hydras., Kali iod., Kreso., Nit. acid, Nux vom., Puls., Staph.

Arms.—Arn., Dulc., Graph., Hydras., Kali iod., Mez., Nat. mur., Nux vom., Staph., Tell.

Hands and Wrists.—Berb., Bov., Cal. carb., C. phos., Canth., Coni., Cup. ars., Dulc., Graph., Hydras., Hyper., Kreso., Mez., Nit. acid, Pet., Sepia.

Breasts.—Caust., Kali carb.

Umbilicus.—Merc. biniod.

Trunk.—Comocl., Kali iod., Mez., Nit. acid, Nux vom.

Genitals.—Arn., Ars. iod., Benzoic acid, Canth., Chel., Coni., Croton tig., Graph., Hepar, Hydras., Kali iod., Merc., Staph.

Anus.—Aloes, Berb., Cal. fluor., Merc. biniod.

Thighs.—Hepar, Merc., Nux vom.

Legs.—Arn., Chel., Comocl., Kali carb., Mez., Nat. mur., Rumex, Staph., Tell.

Feet and Ankles.—Arn., Mur. acid, Nat. mur., Pet.

Flexures or folds of skin.—Caust., Hepar, Merc., M. biniod., Nat. mur., Sepia, Zinc.

CONDITIONS AND SENSATIONS

AGGRAVATIONS

Evening and night.—Alum., Anacard., Ars., Cal. carb., Carb. acid, Caust., Como., Coni., Crot. tig., Hepar, Hyds., Kali iod., K. sulph., Kreso., Led., Lyc., Merc., Mez., Nat. mur., Nit. acid, Pet., Ranunc., Rhus, Sepia, Staph., Tell., Thuja, Viola, Zinc.

Morning and day.—Aloe, Anacard., Arn., Bary. c., Bov., Cal. carb., Chel., Como., Crot. tig., Dulc., Hepar, Hyper., Lyc., Nat. mur., Nit. acid, Nux vom., Pet., Sepia, Sil., Sul., Thuja.

Changes of temperature.—Bell., Bry., Cal. phos., Hyds., Ranunc., Rumex.

Cold and cold weather.—Ars., Cal. carb., Hepar, Merc., Pet., Rhus, Rumex, Tel., Thuja.

Dampness and damp weather.—Aloe, Cal. fluor., Cal. phos., Merc., Mez., Nit. acid, Rhus.

Warm and warm weather.—Alum., Aloes, Anacard., Bell., Berb., Canth., Caust., Clem., Como., Dulc., Graph., Iris, Jug. cin., Kali bichrom., K. carb., K. sulph., Led., Lyc., Merc., Mez., Mur. acid, Nux vom., Psor., Puls., Sul.

Cold water, washing.—Ant. carb., Ars. iod., Bary. carb., Bov., Cal. carb., Clem., Coni., Crot. tig., Nat. mur., Sul., Thuja.

Touch.—Bell., Berb., Carb. acid, Como., Crot. tig., Fago., Lyc., Mez., Mur. acid, Nit. acid, Staph.

Open air.—Caust., Crot. tig., Kali carb., Nat. mur., Psor., Zinc.

Scratching.—Berb., Como., Coni., Graph., Fago., Hyper., Oleand., Pet., Ranunc., Tel., Zinc.

Walking.—Aloes, Berb., Iris, Jug. cin., Merc., Mez., Psor.

Rest.—Am. carb., Bary. c., Chel., Como., Coni., Kali mur., Mur. acid, Oleand., Rhus, Tel., Thuja.

Pressure.—Chel., Iris, Kali bc., Kres., Mangan.

Excessive eating.—Aloe, Am. carb., Dulc., Nux vom., Puls., Sepia, Sulphur.

AMELIORATIONS

Evening and night.—Hyper., Kali bc., Lyc., Nux vom.

Morning and day.—Merc., Psor., Sulphur.

Cold application and bathing.—Berb., Canth., Dulc., Graph., Kali carb., Nit. acid, Rhus, Sepia.

Cold weather.—Kali bichrom.

Dry weather.—Am. carb., Dulc., Rhus.

Warm applications.—Ars., Bry., Cal. carb., Nit. acid, Rumex, Sil., Thuja.

Open air.—Bary. carb., Como., Kali sul., Lyc., Mez., Puls., Sepia, Thuja.

Motion or exercise.—Chel., Como., Kali phos., Rhus, Sul.

Scratching or rubbing.—Carb. acid, Canth., Colch., Hyds., Kali iod., Kali phos., Kreso., Led., Lyc., Mangan., Mur. acid, Nit. acid, Nux vom., Rumex, Staph., Sul., Zinc.

Eating.—Chel.

Pressure.—Hyper., Kali carb., Rhus, Sepia, Zinc.

Rest.—Merc., Pso.

Lying down.—Cal. fluor., C. phos., Canth., Puls.

PSORIASIS

(*Lepra; Alphos; Psora.*)

DEFINITION.—A chronic disease of the skin characterized by lesions primarily round in shape, dry, red, and more or less covered with yellowish, pearly or silvery white adherent scales, which may be abundantly shed, and if removed, rapidly re-form.

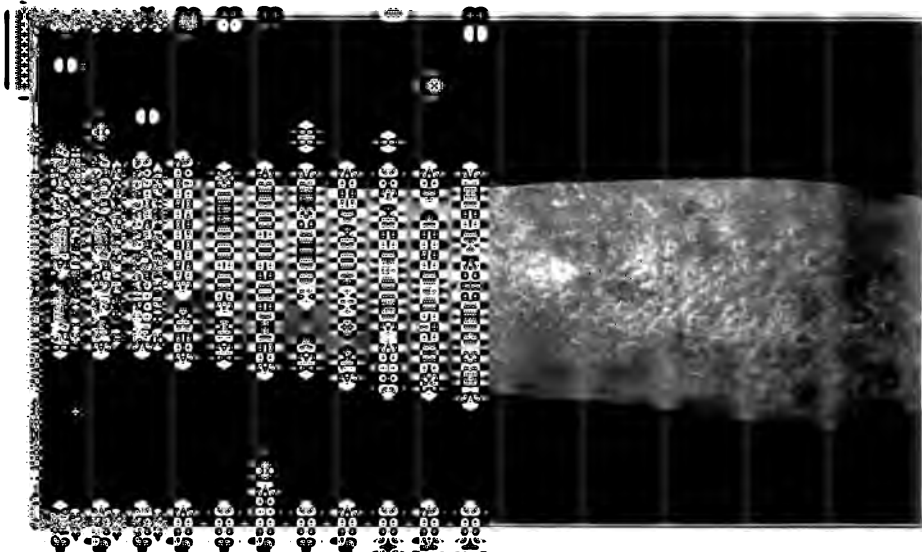
Owing to its persistency and tendency to recur, psoriasis is one of the most common cutaneous diseases. It manifests its systemic origin by usually occurring symmetrically, and its probable connection with some derangement in nutrition by generally beginning on the extensor surfaces, where the circulation is less active than in many other parts of the skin.

SYMPTOMS.—Without prodromal signs of any kind psoriasis first makes its appearance in pin-head sized, reddish macules which, within forty-eight hours, become capped with a whitish scale, *psoriasis punctata*. The spots gradually enlarge in diameter and in thickness of the scales so that when about one-fourth of an inch across they look like drops of mortar laid upon the skin, *psoriasis guttata*. Some or all of the patches may rapidly or slowly increase in size by peripheral growth, and when they reach the size and shape of familiar coins are known as *psoriasis nummularis*; continuing to spread outwardly two or more patches may coalesce forming an irregular shaped lesion, or resolution may occur in the centre of a patch leaving a ring-like form, *psoriasis annulata*. If two or more *circinate* lesions join, compound ring shapes are seen, and later, as the points of contact melt away, irregular lines are left, *psoriasis figurata* or *gyrata*. Usually these transitional forms are very slow in their evolution; or, again, the lesions may be arrested at any stage, to remain more or less stationary, or slowly, sometimes rapidly resolve. The individual spots may vary widely in their rate of progress, so that in some cases nearly all the above forms are present at the same time. Occasionally the union of patches goes on until there is a wide extent of surface involved in varied or more uniform appearance, *psoriasis diffusa*. Rarely the disease may be widely generalized or pass into a pityriasis rubra, and then has been called *psoriasis universalis*. Persistent cases with more than usual thickening of the skin, sometimes fissures, heavy and more adherent scales have been termed *psoriasis inveterata*. When there is a tendency to the central heaping of scales, the terms *psoriasis rupioides* or *psoriasis ostreacea* are applied. Rarely papillary hypertrophy is noted, *psoriasis verrucosa*.

The scaling, which is always a feature of psoriasis, varies in different cases, different spots and at different times. While the scales are adherent, they can be readily removed, and if of recent formation, minute bleeding points are apt to appear from forcible detachment. The color of the affected skin is at first rose or light red, usually becoming a brighter red if the progress is acute, and a deeper red when the lesions persist for some time. Sometimes in the more acute cases the scales are thin, do not accumulate, and the lesions especially on the extremities may present an angry, less defined appearance, with sometimes heat, tenderness, itching, and, if irritated, may produce a discharge altogether resembling eczema.

In nearly all cases the eruption is dry from beginning to end, whether of short or long duration. Untreated the disease tends to continue, but spontaneous remissions are likely to occur. Some cases go through a lifetime without a complete cessation of the eruption and without any special disturbance of the general health. Others may show temporary disturbances of nutrition or some constitutional defect. When the eruption disappears it may leave no trace behind except a temporary redness, or a more persistent discoloration on dependent parts, as the legs, may remain, and sometimes after treatment with full doses of arsenic there is pronounced pigmentation.

Psoriasis may be limited in distribution to the extensor surfaces of the



PSORIASIS

VARIETY OF THE ARM

period; occupation, housekeeper; general
ago with heat and burning sensations and
Some relief has been obtained from warm
insist of flat maculo-papules, situated on a
with pearly white and white scales. Cured

ase of the

legs (or only on the knees), thighs, arms (perhaps only the elbows), scalp, back, less commonly on other parts of the trunk, flexor aspects of the extremities, face, and rarely on the palms and soles. Never does it develop, however, in the two latter locations without first appearing elsewhere on the skin. Crocker asserts that the majority of cases of so-called palmar or plantar psoriasis are of syphilitic origin, or else are eczema.

Psoriasis never attacks the mucous membranes, but may extend on to the glans penis. On the *scrotum* it may lead to considerable thickening and fissuring of the skin and a thin exudation. The *nails* may become affected by psoriasis (see onychia) and present nothing characteristic. Sometimes it begins with a patch of discoloration under the border of the nail, or underneath the body of the nail. There may be a slight depression of the nail only, or all degrees of hypertrophy may follow. The presence or history of the disease elsewhere must usually be relied on to determine its nature. On the *scalp* the disease rarely interferes with the growth of the hair; but it is often noted that it will remain on the scalp for months or years before becoming generalized. When it advances to the hair border a red line or strip may be seen which resembles eczema, but it is never moist.

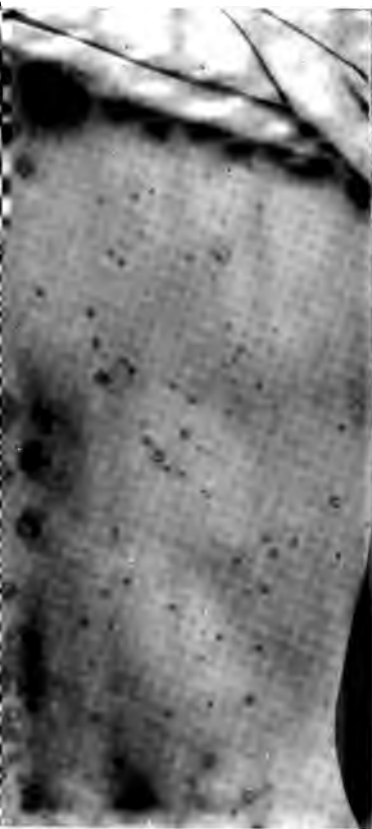
Psoriasis is a disease of all ages and conditions of life. It usually begins primarily in early life, authorities differing as to the most common age. Bulkley (Transactions of the Medical Society of the State of New York, 1895) gives as the result of an analysis of 366 cases in private practice, fifteen to twenty years of age as the period when the largest number (over twenty per cent.) of cases first appeared, while a majority (fifty-five per cent.) were found to have had the eruption first between ten and twenty-five years of age. Greenough (Transactions Am. Dermatological Assoc., 1885) makes the most common age of first occurrence between ten and fifteen, and Neumann, as quoted by Bulkley, places the time of first appearance at about the sixth year of life. A number of cases have been reported as occurring in the first year of life, the editor has treated one case appearing before the fourth month, and Wilson mentions a case at eighty-five. It is not extremely rare after fifty. As compared with other common diseases of the skin, it stands about fourth in order of frequency (two to three per cent. of all skin cases).

It remains to be noted that psoriasis may be modified in appearance by various influences. Thus, in acute fevers, especially the exanthemata, the eruption is likely to disappear, to return again with the restoration of the usual health. Eczema and syphilis usually have no effect on psoriasis; either disease may exist side by side without modifying each other. On the other hand, scrofula, gout, parturition and lactation tend to aggravate the disease in one way or another. A change from the usual appearance of psoriasis may be due to previous treatment to remove the scales; in cases attended with much pruritis frequent excoriations may result in pus inoculation and ecchymatous and other lesions arise therefrom. Even without arsenic, pigmentations may rarely attend or follow psoriasis; still more rarely atrophy of pigment, real or apparent from increase of color about the site of a patch, as well as superficial scarring may be a sequence.

ETIOLOGY.—The natural and clinical behavior of psoriasis indicates that it may be due to some systemic cause or causes not incompatible with general vigor. The presence or predominance of an element in the circulation or tissues sufficient to irritate the nerve structures which control the nutrition of the skin is the most plausible explanation of its causal operation in the absence of scientific proof. In other words, the essential causes are internal and constitutional, and when the predisposition is thus established the external evidences of the disease may appear with or without the aid of an exciting factor.

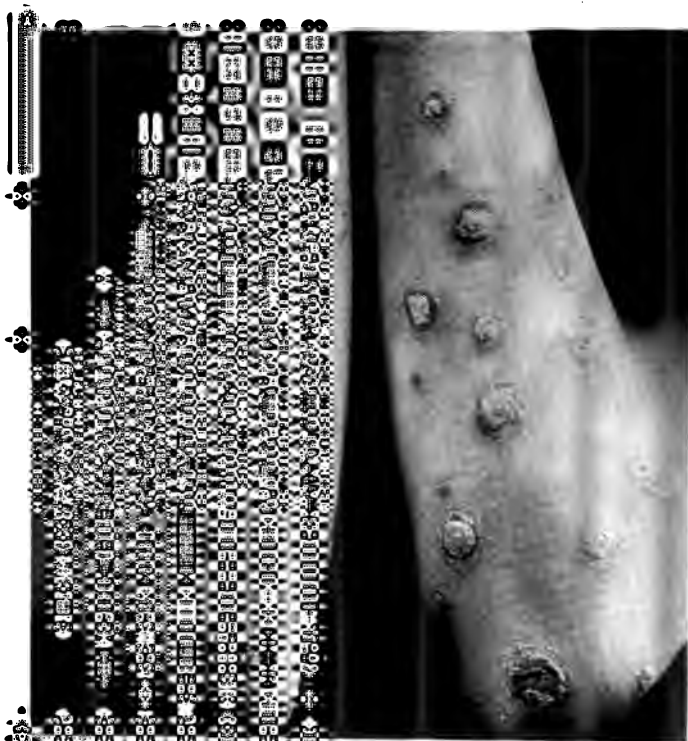
It has been claimed that syphilis is a remote cause of psoriasis; also, that rheumatism, gout, struma, tuberculosis stand in etiological relation to it, but scientific proof is wanting, although the editor has noted the presence of the uric acid diathesis in fifty per cent. of the cases of psoriasis inveterata. *Heredity* seems to be an important factor as attested by the clinical records of the last two hundred cases treated by the author and editor, in which about twenty per cent. of the cases give some variety of hereditary influence. E. Wilson gives thirty per cent. as the proportion and Bulkley's report shows the existence of a probable hereditary influence in about fifteen per cent., though the history of occurrences of the disease in children and grandchildren (posterior heredity) and in brothers, sisters and further removed relations (collateral heredity), if admitted, would greatly increase the proportion. This, however, is not exceptional to psoriasis. The disease often begins in childhood, but no child is known to have been born psoriatic. While hereditary tendency (as in most diatheses) cannot be denied as existing in some cases, it is probably much less frequent in psoriasis than in some other diseases, such as gout, rheumatism and syphilis. Modern views as to the nature and origin of tuberculosis and leprosy would suggest a possible parasitic etiology in cases occurring in the same family, quite as reasonable as the theory of heredity. Although attempts at direct inoculation have failed, Destot inoculated himself from an infant with vaccinal psoriasis, and Lassar produced a skin disease in rabbits by rubbing into their bodies, scales, blood and lymph removed from psoriatic patches of a man.

Rare instances have occurred where psoriasis followed vaccination, tattooing and other excoriations of the skin, and these would point to the fact that the disease is an acquired one. The biborate of soda, given internally, and injections of tuberculin have also produced psoriasis. The often noted occurrence of psoriasis in gouty families has led some clinicians to believe that the two diseases were etilogically related. The same views are held to some extent as regards rheumatism. Although my personal experience does not support this view so far as based on related attacks, on the other hand, evidences of a similar retention in the system, or excess of waste or other products in the secretions, have been found in a large per cent. of cases. The urine is often hyperacid and of a higher specific gravity than the average, due to phosphates, urates, etc. The stools are not infrequently lighter than normal in color, and constipation or other signs of defective hepatic function is not uncommon.



ESOPPLASIS

[illegible]



—PSORIASIS

The following are the most common varieties of psoriasis:

- 1. **Plaque psoriasis** - The most common type, characterized by raised, scaly lesions.
- 2. **Guttate psoriasis** - Characterized by small, drop-shaped lesions.
- 3. **Inverse psoriasis** - Characterized by smooth, red lesions in skin folds.
- 4. **Pustular psoriasis** - Characterized by pus-filled blisters.
- 5. **Erythrodermic psoriasis** - A severe form characterized by widespread redness and peeling.

Notwithstanding the apparent robust health of many sufferers from the disease and the absence of any special complaint on their part, I have seldom seen a case where some departure from even their personal standard of health could not be found on careful examination. In this way a certain basis for treatment can usually be established.

Whatever the dynamic origin of psoriasis may be, its ultimate development seems uninfluenced to any extent by age, sex, rank or occupation. The general run of cases are worse in winter. Granting the predisposition, many of the exciting causes noted in eczema may likewise determine an onset of psoriasis. External frictions, excoriations, etc., may fix the earlier site of lesions. Grief, fear, mental strain and other nervo-mental influences may precipitate an attack.

PATHOLOGY.—Many different opinions are held as to the nature of the conditions which cause the histo-pathological changes in psoriasis. Some claim that they are parasitic, others that they are neuropathic. The most plausible theory is that the disease is due to an undiscovered parasite "implanted on susceptible soil." It is fairly well agreed that psoriasis begins as a non-inflammatory hyperplasia and multiplication of the cells of the mucous layer of the epidermis, producing downward growth of the interpapillary processes and apparent elongation of the papillæ, followed by dilatation of the blood-vessels of the papillary layer of the corium, serous transudation and moderate cell infiltration around the vessels. The changes in the cells of the horny layer of the epidermis may be due to premature conversion of the rete cells or to anomalous keratinization. In advanced cases, vascular dilatation may extend into the deeper parts of the derma, and the infiltration, together with the changes in the epidermis, elevate the lesions above the level of the skin. The silvery-white color of the scales is caused by the presence of air between the cells forming the scales.

DIAGNOSIS.—The presence of some of the characteristic features of psoriasis—location of lesions on extensor surfaces (often on knees and elbows), their symmetrical distribution, absence of moisture and marked subjective sensations, pearly-white adherent scales, and the red, often bleeding points on removal of the scales—readily distinguish the disease from all others. The method of evolution and long duration, when known, may be of assistance. It is only in the atypical cases that doubt may arise.

Eczema squamosum may resemble psoriasis. Generally some history of moisture, the ill-defined border of an eczema patch (thickest in the centre), its darker and less abundant scales, location in the flexures of the joints or on the flexor surfaces, and the presence of marked pruritis will clearly establish the existence of eczema. Sometimes the two diseases exist together. Both may affect the nails; eczema most often attacks *all*, psoriasis one or more, never all at once.

Seborrhœa of the scalp is generally more diffused than psoriasis. If the latter extends beyond the hair line, it shows its characteristic appearance, and its lesions or a history of them on its favorite locations can usually be found.

The scales of seborrhœa are dirty and fatty, and if removed show a pale surface, rather than a red or bleeding area, as in psoriasis.

Seborrhæic dermatitis of the non-hairy parts may closely resemble psoriasis in shape of lesions and the readiness with which they can be made to bleed, but the scales of the former are not pearly or silvery white, rather they are greasy and tend to form into crusts, and the affected skin is generally a yellowish-red. It seldom occurs in the favorite locations of psoriasis. In doubtful cases, a history of the origin of the eruption and its evolution will clearly establish its nature.

The lesions of *trichophytosis* may be distinguished from psoriasis by a history of contagion, asymmetrical location, elevated and at first papular margin and when on the scalp by the short, stubby hairs. Its scales are usually scanty and under the microscope will show the presence of the fungi of ringworm.

Lupus erythematosus seldom simulates psoriasis. It is often situated on the face, an uncommon site of psoriasis. Occurs generally first in middle life instead of before, as is the rule with the latter. Its scales are scanty, very adherent and when removed often show the patulous opening of the sebaceous follicle from which a pellicle of the scale has been torn. On the scalp lupus destroys the hair, and here and on other parts in its evolution leaves sores, neither of which effects follow psoriasis.

Lichen planus and *rubra* eruptions very rarely may look like psoriasis when the former has formed patches or become generalized. *Lichen planus* begins as flat, smooth, shining, angular papules which may be aggregated together and new lesions spring up between the early papules, thus forming infiltration, over which there may be a scant scaliness. Psoriasis begins as a minute spot which enlarges at the periphery, alone forming a roundish patch, or in union with similar patches forms larger and less regular patches over which there is usually abundant scaling. Moreover, the latter selects the extensor surfaces and lichen, as a rule, the flexor, especially at the wrists and sides of the knees. The bluish-red color of lichen planus contrasts with the brighter red of psoriasis, and the stains left by the former are rarely seen after the latter except as an effect of treatment. The acuminate papules of *lichen ruber* begin on the trunk and the infiltrations are formed in the same way as lichen planus. When generalized the infiltration of the skin is much greater than in like cases of psoriasis, and the scaliness much less.

Pityriasis rubra rapidly spreads all over the surface of the skin and the scales are thin, papery, easily detached, do not fully cover the reddened skin and are never piled up in crusts. Any similar picture from psoriasis would be months or years in developing.

The *scaly syphilides* may be easily mistaken for psoriasis in the absence of a definite history of syphilitic infection. Syphilis of the skin, like eczema, is a polymorphous affection, and nearly always other than scaly patches can be found or evidence of their previous existence learned. Signs of the disease on the mucous surfaces where psoriasis is never seen may frequently be discovered. Syphilis seldom occurs on the elbows or knees. The lesions

of the *secondary* form are rarely large and do not tend to spread peripherally; the scales are of a dirty gray color and not abundant or freely shed. After a few days' duration, the brownish-red color of syphilitic lesions are characteristic, as are also the fawn-colored pigmentation left after the eruption subsides. The constitutional symptoms of syphilis, bone pains, etc., if noted, may aid the diagnosis. The scaly lesions of *tertiary* syphilis are usually few in number and not symmetrically distributed. The edge of a patch is often elevated, so that the centre appears depressed, and with or without ulceration, scars and deep stains commonly follow. Still, the resemblance to psoriasis is so close in some cases that careful investigation of the history, etc., will be necessary to remove all doubt.

PROGNOSIS.—Many cases of psoriasis can be cured by carefully selected treatment. Some in a few months when the indications are clear and the disease has not been of long duration. Others may require years of attention before the liability to near recurrence can be eradicated. A large proportion of the latter, otherwise enjoying average health, will not continue a systemic remedial course sufficiently long to insure good results. Most of the cases which have been under my observation for several years of treatment have fully recovered, or at least ceased to have annual or other recurrence. The historically bad prognosis of psoriasis is no longer justified; rather, in general, it may be said at least to be hopeful as to permanent cure as well as for temporary relief.

TREATMENT.—Every case of psoriasis having been carefully individualized, treatment by whatever method should be directed to the correction of the underlying systemic cause, however slight that may appear. All that is comprehended under personal hygienic living may be regulated in some degree. If radical changes are needed, they can be made gradually by looping off here and adding there; perhaps in cutting down diet and adding physical exercise to help correct sub-oxidation so often existing in diathetic affections. In youth regulation of diet may be only acquired, usually by increase of vegetable and lessening of animal food. Rarely more nitrogenous food may be needed during the formative age, but even in cases exhibiting some debility it is seldom that any part of it can be attributed to abstinence from animal food. In early adult life and after, the majority of psoriatics indulge in too much nitrogenous food, and often in a too liberal diet altogether. Hyperacid states result especially in those leading sedentary lives. A gradual or immediate change to a largely vegetable dietary (favoring alkalinity), though perhaps at first not well borne, is ultimately of much benefit. In the vigorous often the omission of one regular meal out of the day works well. I have seen the good effects from foregoing breakfast altogether or cutting it down to very moderate proportions, at the same time increasing the quantity of fluid drank, preferably a pure water, but the tastes of patients cannot be altogether disregarded if we expect directions to be carried out. A liberal supply of oxygen by systematic ventilation of day and night rooms is not to be overlooked. Exercise has been mentioned. If increase is needed or greater variety, this must usually be

advised in connection with one's vocation or daily routine of work or pleasure. For those with leisure the various active games, riding, driving, etc., will suggest themselves. Sunlight is beneficial and it is interesting to note that psoriasis is not common on the exposed parts. No cast iron rule can be made for attention to all physiological needs, and explicit directions, therefore, while important, must be within the capacity of the patient to carry out. Nearly every one can take a cold towel bath morning or evening, with the exercise incident to thorough friction of the whole skin, and find it not only beneficial but refreshing. Water has decided therapeutic uses in psoriasis. The cold spray or needle bath over the spine for a few moments at the end of an ordinary daily bath, or the cold pack occasionally, may be very beneficial by its action on the nervous system, while the Turkish bath once a week is of considerable local value. Water internally in sufficient quantity to facilitate transference and elimination is important in this as in many other diseases. For the well-to-do, change of scene or climate may be advisable. Many cases thrive in a warm climate during the winter months, especially if a course of bathing in hot natural spring water can be taken. The Virginia Hot Springs and some in Arkansas have been of service combined with other treatment. The editor has noted marked benefit to follow the use of the natural baths at Mt. Clemens and at the Crockett Springs (Virginia) in four instances. Pure water is to be preferred to the mineral waters for internal consumption. Tonic effects may be produced by general galvanization, faradization, static electricity and high frequency currents.

Having corrected physiological errors by physiological methods so far as practicable in a given case, the patient is in the best condition to respond to an indicated drug. This should be selected and administered before local treatment is instituted, and in many cases the latter can be dispensed with altogether. There can be, however, no valid objections to local mechanical measures for loosening and removing accumulated scales.

Frictions with simple oil or fat may be thoroughly made in the morning, and then the surplus fat and loose scales wiped off with a towel or gauze. If the eruption is extensive this takes time when well done. The application may be made again at night, followed by a warm bath with frictions, with simple soap and a nail brush employed to remove the scales. This method of freeing the patches of scales can be repeated every day or only often enough to keep the patches clear. When the scaling is moderate or in acute cases, especially in children, a daily bath made *alkaline* by the addition of two to six ounces of sodium carbonate, sodium bicarbonate, sodium biborate or sodium hyposulphite, will suffice to remove the scales. If the skin becomes dry a simple ointment of equal parts of petroleum and lard may be used. *Salicylic acid* from its well known effect on corneous tissue can be made use of to reduce circumscribed scaling. For this purpose a five to ten per cent. ointment can be used in place of the simple fat mentioned above, or when the lesions are not extensive a more convenient method of applying salicylic acid is in the shape of a varnish composed of half a drachm of the latter to an ounce of



PSORIASIS

INVETERATE TYPE

Forty-five. Duration, fifteen years. Treated with *chrysarobin* just before being photographed. Note the dark pigmentation of the psoriatic lesions and the absence of white scales. Local treatment with the indicated ointment has not been successful.

traumaticine or collodion. After the bath following the first application of simple fat, it can be painted over the patches with a brush and allowed to remain for twenty-four hours, at the end of which a warm bath will loosen the coating of varnish so it can be lifted off and the surface well cleansed. The painting can be repeated after the bath daily, or as often as needed to keep the surface free. The effects of these applications are purely local and relieve the diseased skin from the irritation of its own product, and hence further the action of internal remedies. If it becomes necessary to produce local pathogenetic effects later, which I believe is seldom advisable, other applications can be employed. I have rarely made use of them and cannot speak from much personal experience. When there is more than average persistency of the lesions with thickening of the skin, frictions with tincture of green soap may be used every two or three days, followed by a protective application of some kind. The soap thoroughly removes the scales, aggravates the irritation of a patch, which is followed by improvement as the latter subsides. The effect on each patient must determine the frequency and number of repetitions of the frictions, the object being by gentler and less frequent aggravations to bring about a return of normal nutrition. With a disappearance of the thickened condition of the skin the use of the tincture of soap should be discontinued. When the patches are few and small in area, *chrysarobin* is, perhaps, the most effective stimulant. Its drawbacks are the danger of toxic effects and over-irritation of the skin from its incautious use, and the disagreeable stains it makes on the skin and clothing. The latter objection has led me to discard it altogether in ointment form and only employ it in flexible collodion, traumaticine or chloroform, which, when dried, does not stain the linen. It is not suited for use on the face or other exposed parts. Dissolved in traumaticine in the proportion of ten to forty grains to the ounce, it can be painted with a brush over the smaller patches and permitted to remain until it begins to separate at some part, when a warm bath will remove it altogether. The varnish can be renewed at once, or after an interval, when improvement again ceases. When the stronger solution (thirty to forty grains to the ounce) is required, chloroform is a better vehicle. This is well rubbed on to the patches with a stiff brush. The subsequent course is the same as when traumaticine is used. Flexible collodion has no advantage over other vehicles except on parts of the skin subject to greater motion. If there are many lesions a few each day can be treated with greater safety. *Beta naphthol* or *ammoniated mercury*, in the strength of fifteen to ninety grains to an ounce of vaseline, is useful in cases needing mild pathogenetic effects. *Thymol* is adapted to similar cases and may be used in like proportions. *Resorcin*, ten grains to two drachms to an ounce of fresh lard, makes a cleanly application, the strength of which can be graduated to the age and the effect desired. Either of the three last-named drugs can be used on the face, where the eruption in children is not uncommon. The mercurial ointments (except the above-mentioned) have been recommended as useful local stimulants in psoriasis, but the objections to their employment are greater, without their possessing any qualities superior

to the applications already named. Neither does the use of *pyrogallol*, *tar*, *turpentine*, *hydroxylamin*, *engallol* or *eurobin*, give results over less objectionable applications great enough to compensate for their disagreeable or dangerous properties.

Light baths have been used for therapeutic purposes. The most efficient is that of the sun, but it is unreliable and impracticable. The arc light is the best, although baths from numerous incandescent lamps have some value. *Radiotherapy*, while based on the same theory as the sun-bath, presents better clinical possibilities. The most satisfactory results are obtained in those cases of inveterate psoriasis in which the lesions are few and circumscribed or localized. Hyde reports entire removal of lesions in fifty per cent. of his cases treated with the Röntgen rays and the editor has obtained equal results in forty per cent. of his cases. Many patients will not persist with the treatment or do so irregularly and hence statistics are not satisfactory. A soft tube is used covered by a Friedlander hood, at a distance of six to twelve inches from the patient, with exposures varying from four to ten minutes, twice a week for three weeks. Then discontinue for ten days to permit involution. The whole procedure can be repeated if necessary, but usually results will be noticed by the fifth or sixth treatment. It cannot be said at this time that this method is superior to, or that it gives more permanent results than other local measures, but it is cleanly, simple and the use of the rays for short periods minimizes the danger of developing a severe dermatitis. At the present writing the *Finsen light* and *radium* present no advantages over the *X-rays*.

The use of *arsenic* (usually Fowler's solution), *potassium iodide*, *sodium salicylate* or *salicin* in material doses, do not yield results that are spectacular or satisfactory; however, individual cases are sometimes benefited by a short course of physiological medication. The same may be said of the *iodo-nucleoid*, a new pharmacal preparation.

A number of our colleagues have reported cures with the aid of *Thyroidin*, 2x or 3x, empirically prescribed. The editor experimented extensively with this substance and has seen good results follow its use in a small number of cases.

Internal pathogenetic treatment is the most important and the most difficult to select, owing to the poverty of symptoms obtainable in a majority of cases of psoriasis. Still a study of the constitutional type, history of other antecedent diseases or attacks, together with the peculiarities of the individual, will nearly always furnish a basis for drug selection. See indications for *Agnus cast.*, *Arnica*, *Arsen.*, *Asterias rub.*, *Borax*, *Cal. fluor.*, *Canth.*, *Carbol. acid*, *Colch.*, *Hydrocot.*, *Iris ver.*, *Kal. bichrom.*, *Lycop.*, *Mangan*, *Merc. virus*, *Mez.*, *Nat. arsen.*, *Phyto.*, *Petro.*, *Sul.*, *Thuja*.

DERMATITIS EXFOLIATIVA

(*Pityriasis rubra*; *Pityriasis rubra aigu.*)

Under various terms rare exfoliating affections of the skin unassociated with the common cutaneous diseases, such as psoriasis, eczema, etc., have been described by different observers. Considerable confusion exists as to whether they are distinct diseases or clinical variations of one disorder. Crocker (*Diseases of the Skin*, 1903, p. 389) takes the latter view, and treats of them under the general head of *pityriasis rubra*. While holding the same opinion, the more frequent occurrence of what is ordinarily described as dermatitis exfoliativa leads me to prefer the latter as a general name. At the same time a term which indicates a pathological condition is to be preferred to one indicating a symptom, however prominent.

DEFINITION.—An inflammatory disease of the skin, primary or secondary, becoming general or often universal in its distribution, and characterized by a pronounced redness of the surface, with abundant and repeated desquamation of various sized papery scales.

SYMPTOMS.—The eruption may appear without any prodromal symptoms, or its onset may be attended with general feelings of illness, gastric disturbances, loss of appetite, sometimes a chill and other pyretic symptoms. An evening temperature of 101° – 104° has been observed, but the fever rarely continues. The redness, which may vary from a bright to a violet hue, more often begins about the flexor junctions of the extremities, such as the groins, axillæ, etc., but it may appear on any part, or several at the same time. Wherever arising it commonly extends, meets new points and often rapidly (in two days to three weeks) spreads over the whole integument, and is generally accompanied with moderate sensations of formication, itching, tingling or tension. After a variable time, usually not later than the third week, the skin assumes a dull and deeper color, and scales of various sizes form, being usually largest on the back, where they may be an inch or two in their largest diameter, and smallest on the face, designated as branny desquamation. The scales appear to be formed by a rapid drying and separation of epidermic epithelia, which remain for a time attached at the centre or margin, presenting a fluffy look, or when the flakes are large, resembling plates of armor. Separating at the natural lines of the skin gives them often a ribbed arrangement. When detached they resemble torn pieces of brownish tissue paper, and in marked cases the exfoliating scales may fill a pint or larger measure in twenty-four hours. If the scales are removed, the skin may be found underneath smooth, dry or moist, but the scales very soon re-form. In fact, the continuous exfoliation of the epidermis is the most characteristic feature of the disease. After a time the palms of the hands and soles of the feet may become involved, and here the exfoliation may occur in large pieces or in casts like a glove. In extreme cases the appendages of the skin suffer or are more or less completely destroyed; baldness results, and the nails may be shed after be-

coming deformed (see hypertrophy of the nails). The earliest stages of dermatitis exfoliativa are not often seen by physicians, and sometimes there is a history of a first eruption of papules, vesicles, bullæ or squamous lesions. Again, it may follow eczema, psoriasis, pemphigus, etc., without any great difference in its ultimate manifestations. Sometimes in its course there may be irritating fluid exudations on the surface, or in the shape of small or large vesicles (Devergie). These are most likely to be situated on parts of the skin in contact, as beneath the breasts of women, the axillæ, inner part of the thighs, etc.; they may be temporary, persistent or recurring. One patient under my observation has had for several years an annual eruption of vesicles during the warm season attended with malaise, headache, fever, etc., and followed by an aggravation of the general exfoliation.

The disease begins, as a rule, in adult life, and may go on with varying remissions (sometimes apparently quite disappears) for years; or in most favorable cases for only weeks or months, averaging less than a year. As the disease pursues its course various special symptoms or complications are apt to appear. Itching may be most pronounced when the disease is least active, and heat or burning are seldom constant. There is always sensitiveness to cold, at times the roughened and contracted skin is a source of discomfort; while in the latter stages thickening and constriction may interfere with motion, cause ectropion, etc. (Edema, boils and infiltration of the more superficial lymphatic glands are not uncommon. Constipation or diarrhœa may become troublesome; inflammation of the mucous membranes of the mouth, bronchi, stomach, eyes, frequently occurs. The urine often contains an excess of urates, and renal and cardiac complications may supervene to further impair nutrition and the already existing general debility and cachexia. In fatal cases, death may result from exhaustion, or frequently some acute disease like pneumonia or pleurisy may end the scene.

In the rarer form of exfoliation of the epidermis termed *pityriasis rubra* (Hebra), the disease is usually more insidious in development, persistent in course, profound in its ultimate effects on the general health and nearly always fatal in result. It may begin with a hardly noticeable hyperæmic redness of some part of the skin, which gradually widens in extent, perhaps for a long time without any inconvenience to the patient, though the same sensations in the skin of formication, chilliness, burning, etc., as in dermatitis exfoliativa, may be experienced in slight degree. As the redness extends it increases in intensity, deepening into a venous hue, especially on the legs; the surface becomes dry and comparatively small scales form, fall off, and are constantly removed. The scales are never as extremely large as in the first form, but may aggregate in quantity in marked cases quite as much as in the latter. Months or years may pass while the disease completely invades the whole skin and attains its full development. Finally the hair and nails are affected, the natural secretions of the skin cease, atrophy and contraction begin. The skin loses its red color, becomes thin, parchment-like and constricted; the latter condition interferes with the movements of the body, changes the ex-

pression of the features, produces ectropion, etc. The general health is little disturbed at first and the appetite unimpaired, but eventually both give way to increasing weakness often aggravated by renal disease, gangrene of the skin over some joints, and superficial glandular infiltration and degeneration. After a variable duration, frequently running into years, death may occur from marasmus, asthenia, or be hastened by pneumonia, bronchitis, etc., as in the fatal cases of the more common type.

Typical cases of pityriasis rubra are characterized by features distinct from typical cases of dermatitis exfoliativa, such as its obscure origin, insidious development, absence of moisture, finer scales, atrophy of the skin, and uninterrupted course to a fatal issue, but in many ways the likeness is close and in instances of death from each much the same. According to Jadassohn, who reviewed very fully the reports of other observers, thickening of the skin sometimes occurs in pityriasis rubra, desquamation may appear in large instead of fine scales, slight moisture may sometimes be observed and the prognosis is not absolutely hopeless. Kaposi mentions two cases that probably recovered. Altogether there is much to support the identity of these two forms of inflammatory exfoliation of the skin.

ETIOLOGY AND PATHOLOGY.—The disease may occur at any age, but most cases begin between the fortieth and sixtieth years of life. Males are nearly twice as liable to the disease as females. Antecedent psoriasis, eczema and lichen have been noted, and may have had an etiological relation with or without an underlying tendency to rheumatism or gout. In eleven out of eighteen cases reported by Crocker (Paris Dermatological Congress) there was an association with rheumatism or gout, which supports the view that it is a diathetic affection. Some cases seem to be of septic and parasitic origin. Frequent association with tuberculosis was noted by Jadassohn in Hebra's pityriasis rubra, chiefly involving the lymphatic glands and the lungs. Death has been sometimes due to phthisis, but whether it was secondary in order of occurrence is not clear. Among other causes alcoholic intoxication (the editor has treated two cases apparently due to this cause), chills, applications of chrysarobin, arnica, iodoform and mercury, have been mentioned. Probably these acted as exciting factors only, some indefinite diathesis previously existing. The *pathological* origin is obscure. While histological investigation has shown the process to be a dermatitis, it has not determined whether this is primary or secondary to some disturbance in the central or peripheral nervous system. Signs of both have been found before or after death, but are largely overbalanced by negative evidence. Whatever the primary sources of pathological change, the inflammation of the skin is at first superficial, later involving the entire skin, followed by connective tissue hyperplasia, which, in advanced cases, undergoes cicatricial contraction with abundant pigmentation, and the appendages of the skin disappear. In the epidermis the granular layer is thinned or obliterated, the mucous layer more or less thickened, and its cells failing to pass through the intermediate process of development for cornification, are pushed outward to form the imperfect and thickened horny layer, from which are shed the scales characteristic of the disease.

Myelitis has been noted by Jamieson, and Quinquaud and Lancereaux have described both peripheral and central inflammatory nerve changes. Hanshalter found a microbe resembling staphylococcus albus, but its pathogenic character remains to be determined. It may be that the primary cause will be discovered in some bacillus or toxin acting on the nervous system.

DIAGNOSIS.—The two types of dermatitis exfoliativa may be distinguished from each other by the differences of development and course. Pityriasis rubra, so called, is insidious in development, continuous in course and is attended with a branny desquamation; in comparison with the acute development, variable course and large scales of the more common form. Little difficulty will be found in diagnosing a well-developed case of either form from psoriasis, squamous eczema, lichen rubra, scarlatiniform erythema or pemphigus foliaceus.

Psoriasis is rarely or never universal in distribution, and has little or no effect on the general health; the earlier lesions are round or circular and are soon covered with pearly scales, which adhere to each other, instead of the eruption being diffused and the scales thin and easily detached, as in dermatitis exfoliativa.

In generalized *eczema* there are sound portions of the skin here and there; nearly always there will be a history of multiple lesions, moist exudation and intense itching; the scales are not thin and papery or extremely abundant, as in exfoliating dermatitis, but yellowish, comparatively scant and more adherent.

Lichen ruber begins with characteristic papules, and when it becomes scaly some papules can usually be found; it is rarely universal, and when generalized there is often a marked difference in appearance of different parts of the skin. The possibility of exfoliating inflammation of the skin following the above diseases as well as from the effects of some drugs may be of importance in diagnosis.

Erythema scarlatiniforme may be distinguished from dermatitis exfoliativa by its short duration, and though the scaling may resemble either form of the latter it is not continuous.

Pemphigus foliaceus is a rare disease, but may present a close resemblance to the more common form of exfoliating dermatitis, but it always begins with the formation of flaccid bullæ, though the latter may rupture so quickly as to be overlooked. A careful investigation of the history of the attack and the presence of a nauseating odor will seldom fail to identify that disease. It is to be remembered that bullous lesions may occur in the course of dermatitis exfoliativa, but are never general or continuous.

PROGNOSIS.—This is not so grave as was once thought. It is unfavorable at the extremes of life, when following on some exhausting disease, or occurring in the debilitated or weakly. Even pityriasis rubra is not entirely hopeless.

TREATMENT.—The indications are to correct and improve the nutrition by regulation of the diet, to give protection to the diseased skin by mechanical methods, rest in bed, etc., and to overcome the systemic condition by the use of

a constitutional remedy. The *food* must be adapted to the capacity of the digestive organs, which are liable to be impaired by the disease. Sometimes a milk diet is advisable; more often a selection of easily digested vegetable and animal food is best, preference being given in most cases to vegetables, especially if the patient is not anæmic. Cod liver oil or sweet oil may be used with advantage for the anæmic.

Locally the abraded skin should be protected by frequent applications of simple fat or oil and covered with a bandage of closely fitting linen or cotton underclothing. A warm (sometimes hot) bath to which bran, gelatin or starch has been added, may be taken daily, always remembering to apply the oily dressing afterwards. Plain petrolatum or a cooling salve, like cold cream, may be used instead of an oil. Crocker recommends wrapping the patient in bandages soaked in linimentum calaminæ. A two per cent. calendula ointment has proven efficacious. If the attack is at all severe, the patient is best kept in bed for a time and linseed oil abundantly applied to the skin, a rubber cover being placed under the sheet to protect the bedding. When patients begin to go about they should wear flannels over the linen or cotton underclothes, and carefully avoid changes of temperature or exposure to drafts. For *internal* treatment see indications for *Arsenicum alb.*, *Bell.*, *Colch.* and *Mez.*

DERMATITIS EXFOLIATIVA EPIDEMICA

(*Epidemic eczema; Epidemic skin disease.*)

Within a few years there have been reported as occurring in several English charitable institutions an epidemic skin disease sometimes resembling eczema, but always resulting in **desquamation of the epidermis**, similar to that of dermatitis exfoliativa, with more or less antecedent or concomitant symptoms of anorexia.

SYMPTOMS.—In most cases the eruption, beginning in the summer, was the first sign of the disease, and appeared in the form of irregularly grouped, acuminate papules located at the hair follicles. With or without the grouped lesions merging into patches, the eruption slowly or rapidly spread until the whole surface became a deep red color and covered with abundant scales. Usually the eruption was symmetrical, but in a few cases seemed at first localized and later became general. In a less number of cases the eruption developed from round, defined erythematous patches or flat papules. Sometimes the latter enlarged at the border and became vesicular in the centre, and in many cases of the most common type the papules became vesicular on the second or third day, ruptured and gave exit to a moist discharge characteristic of eczema. Whatever the type of initial lesion or subsequent evolution the final exfoliation of the cuticle followed, and in the absence of moist exudation was objectively nearly identical with exfoliating dermatitis before described. There was an absence of fever in most cases; vomiting, diarrhœa

and sore throat occasionally occurred. Conjunctivitis occurred in most cases. Many cases had swelling and tenderness of the glands of the neck; the skin was deeply pigmented on recovery, and in severe cases the nails and hair were shed. The duration in well marked cases was from six to eight weeks; many had relapses and a few had second attacks. The disease showed a decided tendency to attack the aged, and was more fatal with the male sex, one report giving the mortality of females as about four per cent. and that of males over twenty per cent. Death generally resulted from exhaustion, or from complications such as pneumonia, renal disease, gangrene of the feet, etc.

ETIOLOGY AND PATHOLOGY.—Nothing positively is known as to the causes. The facts that nearly all cases occurred in institutions whose inmates were somewhat disabled by age or disease, of whom about one in five contracted the disorder, and that the eruption spread by peripheral extension, point the origin in some form of local contagion. Micro-organisms were found in the lesions, and Savill and Russell found a rod-like segmented diplococcus in the blood, tissues and exudations. The food and milk supply were suspected as the possible vehicle of contamination. A rabbit inoculated with a culture developed after five days a red and scaly skin without constitutional symptoms, but died as the eruption subsided from no other apparent cause. *Pathologically* the disease is a dermatitis attended with more or less serous effusion and extravasation of leucocytes in the corium and engorgement of the vessels.

DIAGNOSIS.—The characteristic features of the disease ought to make its recognition easy after the lapse of a few days. These are its epidemic nature, absence of fever, preference for the aged, comparatively short course, apparent contagiousness, development and spread of the eruption, its resulting desquamation and large mortality. In some one or more ways it might resemble erysipelas, eczema, dermatitis exfoliativa, ringworm or r  theln, but the absence of other diagnostic evidences of those diseases would be plainly noticeable.

TREATMENT.—Early local antiparasitic measures seem to have yielded the best results. Crocker recommends painting the lesions, if they are limited, with tincture of iodine or collodion. In the stage of desquamation soothing applications, as indicated for dermatitis exfoliativa, ought to be serviceable. Sustaining the strength by a suitable dietary is important. *Arsenicum* is likely to be the best indicated internal remedy.

DERMATITIS EXFOLIATIVA NEONATORUM

(*Ritter's disease.*)

This cutaneous disease of the new born has been chiefly studied and described by Ritter of Prague, who for several years observed nearly three hundred cases in the Foundling Asylum there. Several other Continental dermatologists have reported one or several cases, and in this country several cases have been recorded.

SYMPTOMS.—The disease is described as beginning usually between the first

and third week of life, as a diffused redness, often about the mouth and other parts of the face, sometimes elsewhere on the body, and occasionally is universal at once. If starting in patches, it spreads in a few days all over the surface, reaching the extremities last, as a rule. Desquamation follows rapidly at the first point of origin and occurs in either branny or larger scales of all sizes. These may be easily removed as they loosen at the edges, and underneath reveal a new epidermis. Sometimes a dry and scaly condition of the skin follows the normal changes in the epidermis after birth and precedes the redness. This probably led Kaposi to regard the disorder as an aggravation of the physiological exfoliation of the new born. On the other hand, the exfoliation may be preceded by a fluid exudation in the form of minute vesicles or in large flaccid bullæ as in pemphigus foliaceus. In severe cases of the latter type, when the roof walls of the blebs have been rubbed off, the skin may look as if it had been scalded. After desquamation is over a regeneration of the epidermis occurs quite rapidly, as a rule. The mucous surfaces of the mouth, nose and eyes may be affected. There is little or no systemic fever or other general symptoms unless complications arise. If relapses occur they are commonly mild. Marasmus may supervene in severe cases; and boils, other pustular inflammations and gangrene may follow the disease. The duration is usually from one to two weeks, but may be prolonged from various causes or cut short by death in a large per cent. of the severer attacks.

The CAUSES are not known, though the parasitic theory of its origin seems reasonable; it has not, however, been proven. Neither is the PATHOLOGY at all clear. Some believe with Kaposi, that it is a perversion or excessive physiological exfoliation of the epidermis of the new born with secondary hyperæmia rather than a pure dermatitis. The absence of pyrexia would indicate that it might be an acute disturbance of the nutrition of the epidermis due to a general cause, or, as Elliot has suggested, of those layers of the skin not containing blood-vessels.

DIAGNOSIS will seldom be difficult if the age, development and rapid extension of the eruption and absence of fever are borne in mind. The cases attended with the formation of blebs might be confounded with acute pemphigus of the new born or with pemphigus foliaceus. The former begins with an eruption of discrete bullæ surrounded by a pinkish areola, usually appearing before the end of the first week, rarely after the end of the second week of infancy, and continue to appear in crops for a week or two. Pemphigus foliaceus nearly always occurs in adult life and runs a chronic course.

The PROGNOSIS is grave as given by a mortality in the reported cases of about fifty per cent.

TREATMENT should consist in frequent nourishment, protection of the surface with fat or oil and the administration of an indicated drug. For local application a nutrient fat or oil like lanolin (properly diluted) or sweet oil can be chosen. Lanolin has the further property of a moderate antiparasitic, which may give it additional value in this affection. For internal remedies see especially *Arsenicum* and its salts.

DERMATITIS GANGRENOSA

It is known that many different agents can cause a dermatitis which eventually becomes gangrenous. Among these may be mentioned excessive cold or heat; chemical agents applied externally; drugs ingested; infectious diseases like lepra, tuberculosis, etc.; diseases of the central nervous system; embolism, thrombosis and other diseased conditions of the blood-vessels even when caused by ligatures, tumors or inflammatory processes.

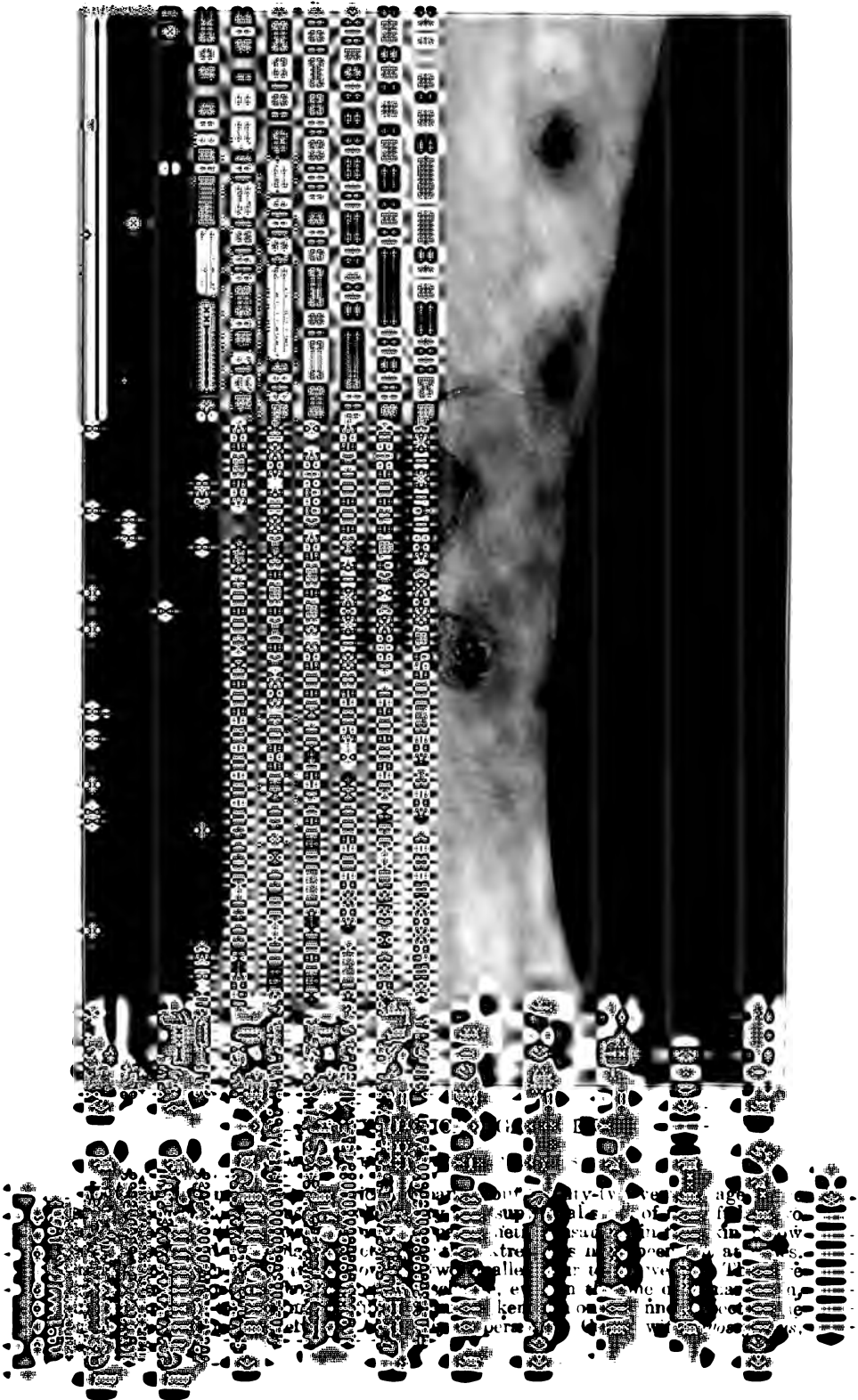
Multiple gangrene has been reported by Crocker as following scarlatina, by Hahl as complicating typhoid fever, by Osler as occurring with malaria, etc. The lesions seem to be auto-inoculable and bacilli and cocci have been found in them. It would appear that the local infection was made possible by the diminished power of resistance present in the diseased tissues.

Hysterical gangrene.—"Spontaneous" gangrene of the skin has been described by Kaposi as a disease noticed by him in hysterical and anæmic young women; but being regarded as possibly an imposture, it has not been generally accepted by dermatologists. Kaposi describes the lesion as a raised and somewhat red spot, varying in size from a shilling to a crown piece, accompanied with a burning sensation. In a few hours the skin becomes bluish-black or greenish-brown in color, and a leathery eschar is formed like that produced by sulphuric acid. A hypertrophic cicatrix follows. The process is repeated in other parts at intervals of days or weeks, and this may continue for months or years before finally stopping. A like case of my own responded to *Hyoscyamus*. Among other possible remedies are *Arsenicum* and *Kreosotum*.

Diabetic gangrene.—Unilateral or bilateral gangrene of the foot, or other portion of the skin of the lower extremities, rarely of the penis, fingers, etc., is one of the less frequent affections of the skin associated with diabetes. It is primary in local origin, or may be secondary to slight injuries, furuncle, phlegmon or anthrax. The lesion passes through the stages of inflammation, the formation of bullæ and sloughing. A form described by Kaposi of bullo-serpiginous gangrene begins in blebs, which ulcerate and heal at one side while progressing on the other. The chief cause of diabetic gangrene may be the low resisting power of the tissues which diabetes occasions, permitting an easy invasion of micro-organisms, or in primary cases it may arise from neurotic sources.

The TREATMENT is that applicable to diabetes, together with local antiseptics, and rarely surgical interference when septicæmia is impending. Local or general symptoms may indicate *Arnica*, *Arsenicum* or *Kreosotum*.

Symmetrical gangrene will be discussed under neuropathic affections (Class IV.).



1

DERMATITIS GANGRENOSA INFANTUM

(*Pemphigus gangrenosus*; *Varicella gangrenosus*; *Rupia escharotica*; *Multiple cachectic gangrene*, etc.)

DEFINITION.—A gangrenous inflammation of the skin of unknown origin, but often following varicella and other pustular eruptions of childhood.

SYMPTOMS.—When first described by Hutchinson in 1882 the disease was looked upon as secondary to varicella, but since then it has been observed after other diseases of the skin in children, and sometimes without any history of antecedent cutaneous disease. If the onset is during the course of chicken-pox or other eruptive disease, some of the lesions instead of resolving take on a new process. A red or purplish areola appears; if crusts are present, pus may form under them, vesicles soon become purulent, or pustules may form independent of vesicles. The lesions with or without rupture and crusting may increase in size to a fourth of an inch or larger in diameter and become covered with an adherent, sometimes blackish crust. When they have attained a variable size, the process of separation begins and extension generally ceases. The ulcer, which is left after the necrotic mass is thrown off, is round or oval with a rather hard edge, precipitate sides, varying in depth with the size, but often extending into the corium or even into the subcutaneous layer, and contains purulent masses of dead matter. If lesions are near together, they may coalesce and result in large, irregular ulcers. When the eruption begins apart from the site or independent of any previous lesions a small papulo-pustule arises on an erythematous base, enlarges to the size of a pea or larger and forms a central crust, sometimes with a pustular border, much like the vaccine pustule. The subsequent course may be the same as in those following on the lesions of a previous disease. Unconnected with antecedent lesions the disorder is commonly located on the lower half of the body, especially on the buttocks and thighs. Here the lesions may be quite numerous and the skin thickly studded with all sizes. On the other hand, they may be few in number and isolated; or the lesions may be little more than pustules with slight tendency to become gangrenous or produce more than very superficial ulceration. Crocker mentions cases which pursued a malignant course from the first, with hemorrhage into the vesicles, ended fatally, and showed post-mortem evidences of pyæmic infection. He also states that the eruption may be primarily bullous in form. In a case under my observation, hemorrhage occurred into a few of the lesions, which were located on the buttocks, but recovery followed without extreme symptoms. In severe cases constitutional disturbances may occur early, and if purulent absorption follows, pyæmic symptoms may appear.

ETIOLOGY AND PATHOLOGY.—This is an affection of early childhood; the youngest case recorded was three months, and the oldest under three years. The majority were in the first year of life. Kaposi, however, states that he has observed the same disease in adults suffering from such cutaneous inflamma-

tions as psoriasis, lichen ruber and pityriasis rubra. My own cases were all under two years of age, and all except one had the attacks come on after some pustular eruption, the nature of which could not always be determined; the largest per cent. were girls. All were clinical patients, and neglect appeared to be at least a contributing factor. Aside from the causal influence of varicella, vaccinia, etc., tuberculosis, rickets and congenital syphilis have been named as causes. It seems probable that some predisposing constitutional state or diathesis is the real cause, and that with its temporary accentuation the eruption may be excited by the local lesions of certain skin affections, foul secretions, micro-organisms, etc. No special organism has been isolated from the lesions of the disease, but various forms of bacteria have been found, including the staphylococcus cereus albus, the bacillus pyocyaneus and the streptococcus pyogenes.

DIAGNOSIS.—The disease may be easily recognized by its usual occurrence in infancy, after other eruptive diseases, or independently, and in the latter event principally on the buttocks, inner thighs or lower extremities; in characteristic lesions, which in their evolution form pustules, crusts and gangrenous ulcers. Usually the several stages of the eruption may be seen in one case at the same time.

PROGNOSIS.—The disease probably is not in itself of a fatal character, but constitutional weakness, cachexia, or some complication may render the prognosis grave. My own cases all recovered, but they were not extremely severe, though one had about forty lesions upon the buttocks and posterior part of the thighs, some of them hemorrhagic.

TREATMENT.—Absolute cleanliness, mechanical protection and in a few cases mild antiseptics meet the local needs. Warm borax water for the first purpose and a weak boric acid or aristol ointment (five to fifteen grains to an ounce of fresh lard) for the latter, is the only local treatment needed for mild cases. In cases of undoubted bacterial infection antiseptic local treatment should be used, such as boric acid, aristol or ichthyol ointments, five to ten per cent., or a 1:3000 solution of corrosive sublimate. In infants when the eruption is so situated that the urine and feces come in contact with it, cleansing and dressing may need to be frequent.

The little patients should be abundantly nourished, perhaps by attention to the mother's diet, if the child is nursing. Among remedies see indications for *Arnica*, *Arsen.*, *Crotalus*, *Kali bichrom.*, *Kreso.*, *Nit. acid*, *Secale* and *Sul. acid*.

VARICOSE ULCER

A varicose ulcer is a loss of substance from a disintegrating and destructive process occurring with a varicose state of the veins.

A phlebitis of the affected veins develops, minute phlebitic points form, causing abscesses which become ulcers by molecular death of the dermal structure and of the surrounding tissue. They usually enlarge by coalescence of

a number of such ulcers, hence are generally irregular in outline with undermined edges. In appearance these ulcers resemble the simple chronic variety elsewhere, with the addition of a deep blue color of the granulations. An eczema rubrum often exists.

The appearance of a varicose ulcer is more accidental than causal as regards the varicose veins, because injury to a limb, however slight, is usually the exciting cause, while the weakened condition of the surrounding tissues, making it difficult to heal, acts as a predisposing factor. Bleeding occurs when the veins are opened and may become dangerous if not fatal.

TREATMENT is directed to the support, pressure and protection of the varicose condition, to the destruction of any bacteria and to the stimulation of the growth of new tissue. Rest in bed, use of bandages to relieve venous congestion, and the raising of the limb are serviceable in severe cases. It is advisable to clean the ulcerating surface, every two or three days, with water as hot as can be borne or with a five per cent. *carbolic acid* solution, or a fifty per cent. solution of the *peroxide of hydrogen* or *electrozone*. When dry, dust finely powdered *boric acid* on the ulcer, cover with *rubber tissue* which overlaps the ulcer edges by at least an inch, and hold in place with adhesive plaster. Over this, gauze is placed and a snug supporting bandage. *Dolomol-calendula* (ten per cent.) or *dolomol-ichthyol* (ten per cent.) may be substituted for the boric acid powder. *Balsam Peru* or *bovine* have given good results when applied in connection with narrow *adhesive straps* which are so arranged as to draw the edges of the ulcer together. The editor can add his testimony to that of many others that the resonator currents (*high frequency*) will aid materially to heal some chronic ulcers. The increased flow of arterial blood and the liberation of ozone are the working factors in this instance. A glass electrode is used to concentrate the current and is held near to the ulcer without being in contact for one to three minutes bi-weekly. Colleville recommends the *Röntgen rays* in the treatment of varicose ulcerations, but further experience is needed before testifying to the efficacy of this method.

Internal medication might demand—*Calcareo fluorica*, ulcers on the legs, extensive varicosities, worse in a dependent position. *Nitric acid*, sensitive, offensive odor, pricking pains, readily bleeding, difficult to heal, worse from touch and cold water. *Kali bichromate*, dry, deep, oval ulcers, edges overhanging, bright red areola. *Sulphur*, raised, swollen, jagged edges, much pus, cedematous swelling and reddish-brown discoloration of the skin. *Hamamelis* and the *mercurials* may also be studied.

PITYRIASIS ROSEA

(*Pityriasis maculata et circinata*; *Herpes tonsurans maculosus*.)

DEFINITION.—An acute affection of the skin characterized by small primary papules which soon develop into slightly elevated round or oval maculæ, varying in size, of a bright or pale rose color and covered with thin, adherent branny or finer scales.

Pityriasis rosea is one of the less common skin diseases, constituting .135 of all cases as compiled from the reports to the American Dermatological Association. It was first clearly described in this country by Duhring in 1880, without knowledge of the previous recognition of the disease by Gibert and Bazin in France in 1868.

SYMPTOMS.—There may be moderate premonitory sensations of malaise, fever, loss of appetite, etc., or they may attend the full development of the eruption. More often general symptoms are altogether absent or unnoticed. The appearance of the eruption in two forms is indicated by the name sometimes used, pityriasis maculata et circinata. When seen only in the *macular* type or stage, the patches may vary in size up to one or two inches in diameter, be roundish in outline or sometimes irregular, ill-defined, of a pale red color, which partly disappears on pressure. The lesions reach their size by peripheral growth, and until the eruption is fully developed the smaller patches may continue to enlarge. Rarely the eruption may become confluent in larger patches, or more or less diffused. More often the patches remain distinct but quite widely distributed, and occasionally only one or two macules appear. In a few days the centre of the macule begins to fade and assume a wrinkled old-parchment yellow or fawn-color, while the border remains reddish and elevated. When the process of evolution is nearly or quite complete in the centre of the large patches, they become converted into ring-like lesions and constitute the *circinate* form first described by Bazin. The separate rings may continue to enlarge, and melting at the junction with other circular patches form gyrate patches of more or less extent. With or without the latter enlargement, the patches gradually fade away in the order of their occurrence, leaving pale fawn-colored stains which gradually disappear.

The common *location* of the eruption is on the abdomen or chest, but it may extend to the thighs, legs or arms, and occasionally becomes widely distributed, very rarely, however, encroaching on the surface of the face, scalp, hands or feet. The distribution of the eruption is symmetrical; it is always dry and is rarely attended with any marked subjective sensation. Itching may be noticed at night, or when the patient becomes warm, but is seldom severe. After a *duration* of from two weeks to two months, the eruption, as a rule, spontaneously disappears; exceptionally it may persist for several months.

ETIOLOGY AND PATHOLOGY.—The causes are not known. The disease may occur at any age, though most common in childhood and youth. Bazin attributed it to the arthritic diathesis, and its symmetrical arrangement on the

skin would indicate an internal systemic origin. If such is the case, other factors found mentioned, such as excessive heat, free perspiration, irritation from clothing, etc., or various gastric disturbances observed by Duhring, Jacquet and others, may act as exciters of an outbreak of the eruption. That this disease may be exanthematous in nature and mildly infectious, would seem possible. Unna and others found that the papillary layer of the corium and the rete were chiefly involved in the *pathological* changes; dilatation of vessels, cell-infiltration and œdema occurring in the papillary body, while intracellular and intercellular œdema and proliferation of the prickle-cells occur in the rete. Minute vesicles, not visible microscopically, form beneath the horny layer as the disease reaches its acme, and the absence of phagocytes in these vesicles leads Sabouraud to infer that pityriasis rosea is not parasitic, but rather a vesicular erythema of toxic origin. Vidal alone has reported the presence of a parasite.

DIAGNOSIS.—The rose tint, shape, scaliness, old-parchment yellow centre, and distribution of the lesions on the trunk, or other covered parts of the skin, together with the absence of contagion, marked subjective sensations, and its short course, make the recognition of pityriasis rosea comparatively easy. It may, however, resemble ringworm of the body, psoriasis, syphilis, seborrhœic dermatitis, squamous eczema and tinea versicolor.

Ringworm or *tinea circinata* and the circinate form of pityriasis rosea may look much alike, but the former is a contagious disease, and often occurs on the scalp, in both respects different from the latter. The rapid development and commonly wide extent of pityriasis are rarely or never seen in ringworm. The presence of the characteristic fungus of ringworm as detected with the microscope is positive evidence of its existence.

Psoriasis does not show a preference for the same location as pityriasis rosea; its round or circinate patches are more elevated, of a deeper red, and often show the congested or bleeding papillæ on removal of its larger, whiter and thicker scales.

Syphilis is nearly always acquired in adult life, and its early maculæ and circinate lesions are dark red, apt to appear on the upper parts of the face, on the palms of the hands, as well as elsewhere on the skin, whereas pityriasis more often occurs in childhood, and is rarely or never seen upon the face or palms. Moreover, other evidences of syphilis can usually be found if that disease is present.

Seborrhœic dermatitis of a mild degree may resemble pityriasis rosea when it begins to fade and takes on a yellowish tinge, but the scales of seborrhœa are fatty, easily removed, and the surface of the patches may become moist, or easily bleed if irritated by friction. The scales of pityriasis rosea are dry, and friction only effects to roughen the surface of the patch. The latter disease is of short duration; seborrhœic dermatitis may last for months or years.

Squamous eczema may at some stage exhibit features like pityriasis. It seldom preserves a roundish shape or develops into circinate lesions, and does not seek the situations common to pityriasis rosea. There is generally a history

of moisture with eczema, itching, and when a scaly patch is deprived of its scales, a moist exudation is apt to appear, which does not occur in pityriasis rosea.

Tinea versicolor is not likely to be confounded with pityriasis rosea. It is never acute in its course, and its patches are yellowish brown rather than rose red in color. A microscopic examination of the scales will always show the presence of the microsporon furfur in tinea versicolor, and remove all doubt of its nature.

The PROGNOSIS is always good. In most cases the disease ends spontaneously inside of two months; rarely it may tend to continue longer.

TREATMENT.—This may be summed up in local cleanliness, correction of any physiological errors of living, and the indicated remedy. Cleanliness of the patches may be maintained by the daily use of a mild borax bath, a ten to twenty per cent. solution of *sodium hyposulphite*, or equal parts of *alcohol* and water. Extensive and pruritic lesions have been relieved by a few brief exposures to the *Röntgen rays*. In a few stubborn cases, a two per cent. *ammoniated mercury* ointment or a five per cent. *sulphur* ointment will facilitate recovery. Gastric or other causal disturbances should be met by attention to the diet, etc. The choice of a remedy will usually come from symptoms apart from the skin (gastric-intestinal, etc.). See among other drugs, *Borax*, *Mez.* and *Nat. arsen.*

LICHEN

The term lichen has been rather loosely employed in the past in the nomenclature of papular eruptions of the skin. It is now used almost exclusively to designate inflammatory papules which undergo no intermediate metamorphosis during their evolution, and include the clinical forms of *lichen ruber*, the more distinct *lichen planus*, and the tubercular form, *lichen scrofulosus*. The word still appears in medical literature in the discussion of certain phases of some other diseases, the chief of which are as follows:

Lichen circinatus (see seborrhœic dermatitis).

Lichen eczematodes and *lichen simplex* (see eczema papulosa).

Lichen pilaris (see *keratosis pilaris*).

Lichen strophulosus and *lichen tropicus* (see miliaria rubra).

Lichen urticatus (see urticaria papulosa).

Other uses of the term require no explanation or occur in relation to the three types of disease first named.

LICHEN RUBER

(*Pityriasis rubra pilaris*; *Lichen ruber acuminatus*; *Lichen psoriasis*; *Lichen neuroticus*.)

Much uncertainty still exists as to the proper limitations of this rare disease. Many able observers believe that *pityriasis rubra pilaris* is a distinct disease from lichen ruber. Others, that it is the same as lichen ruber acuminatus of Kaposi, while some regard it as a form or stage of lichen ruber. The author has had an opportunity to watch the course of a well-marked case of so-called pityriasis rubra pilaris, and feels that the unity of that clinical type with lichen ruber is more than probable. Furthermore, in the existence of a doubt, it seems best not to add to the already extended list of individual cutaneous diseases.

DEFINITION.—Lichen ruber is a chronic cutaneous disease consisting of an eruption of small, reddish, conical papules, chiefly situated at the hair follicles. These by multiplication and aggregation form, as a rule, large infiltrated, scaly patches, producing an apparent deepening of the natural lines of the skin. The disease runs a slow relapsing course, which at different stages or on different parts presents a widely unlike appearance of the surface.

SYMPTOMS.—The primary stage is always papular, *lichen ruber papulosus*. The papules are at first isolated and usually limited to the hair follicles, but not invariably so, as at an early stage they have been seen upon the palms of the hands where hair follicles do not exist. The papules are pin-head to millet-seed in size, pale or yellowish-red, at first smooth; they soon become tipped with a horny adherent scale, and in certain localities as the dorsal aspect of the fingers horny spinous processes may protrude from the apex of the papules. On some parts, at an early stage, they may present an appearance like goose flesh (*cutis anserina*), and as they become closely set feel like a nutmeg grater. At no time do they show any tendency to become vesicular or pustular and when fully developed do not change in size. But the development of new papules between the earlier lesions gradually changes the objective appearance by a close aggregation of the lesions, giving the patches an infiltrated look and accentuating the furrows of the skin. The disease may, by successive development, become generalized over the surface, but usually shows a preference for certain localities, as the upper and central portion of the back, nape of the neck, sterno-clavicular regions, axillary folds, bends of elbows and knees, groins, genital regions, folds of nates, dorsum of fingers, palms, dorsum and soles of feet. The eruption may be somewhat modified by situation. Thus where the friction of the clothing is greatest, as upon the back of the neck and on the hips, the scaliness is least apparent and the papules remain comparatively smooth. On the palms and soles where the skin is thick the papules may not clearly show, though they always precede the formation of thickened scaly patches, which in the course of the disease may become the site of fissures; while on the backs of the fingers where there is no pressure

or habitual friction they may remain unchanged for a long time. If the horny sheath around the hair is torn away purposely or by scratching, the dilated follicle is exposed, but it soon fills again, sometimes with a blackish accumulation of horny epithelia and sebum, which plug the follicle and rise into conical elevations. In most locations the papules tend to increase in number and form patches of small or wide extent, which in a variable time lose their papular character, and in some regions become converted into uniform scaly areas, around which, however, there may be often found isolated papules. Some patches may frequently be found yet in the papular stage, when others have become completely changed in appearance.

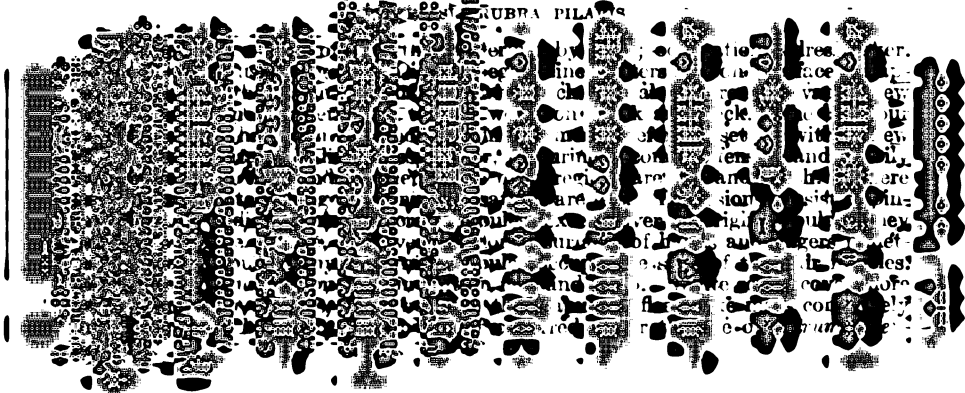
In the squamous form (*lichen ruber squamosus*) the degree of scaling may vary. Where abundant, it thickly covers the surface with a white, fleece-like layer of branny scales, unlike in feature the scaling of any other disease. More often the scales, while snowy in appearance, do not entirely hide the exaggerated lines of the skin, or only completely cover a patch for a short time only. The shape and extent of the squamous patches vary. Over the spinal region of the back, around the waist, over the sternum and on the extremities they may occur in oblong or in wide band-like shapes; in the bends of the arms, on the knees and ankles, they may be oval or spindle-shaped; while on the palms they may assume annular outlines, and on the trunk and extremities smaller patches may become discoid or corn-like in shape. Occasionally, in the latter region the scales become larger and thicker, and resemble similar patches of psoriasis. As the scales are shed gradually or are rubbed off by the clothing, the affected skin presents a striated appearance on a line with the normal folds. This may be slight upon the trunk and other parts of the skin not subject to much motion, or assume a checked look from cross furrows, but over the joints, buttocks, etc., liable to frequent tension, the wrinkled aspect may be so marked as to totally change the objective feature of the disease.

In the rugous form (*lichen ruber rugosus*) the thickened skin may form furrows running in one direction, some merging with adjoining folds, or they may be intersected by the less marked lines running at right angles. The scant scaliness in this stage leaves the anatomical condition of the surface clearly apparent, and over extensor aspects of the knee, buttocks, etc., it may be very marked when the part is in the attitude of extension. Like the abundant scaling of the squamous form, the parallel seaming of the skin is pathognomonic of this stage of the disease.

In the severe forms, the *nails* take on sooner or later hypertrophic changes, either becoming thickened, rough and darker in color, or growing only from the matrix show longitudinal hypertrophy with perhaps loss of color. In advanced stages the *hands* may undergo atrophic changes resulting in prominence of the joints and impairment of motion. The *face* may be affected early or later in the disease. Papules are not usually apparent upon the face, which may first show the onset of the disease by more or less pityriasic scaling, sometimes resembling ichthyosis. Occasionally in mild cases the face may escape altogether. The *scalp* early, as a rule, becomes covered with a dense scaliness like



HEN RUBRA



a seborrhœa sicca, and the hair loses its normal lustre, but is not destroyed. A rare variation of the disease has been described as *lichen ruber moniliformis*, in which the papules occur in beaded lines. G. H. Fox is of the opinion that some reported cases of this form were probably cases of lichen planus.

The three common forms of lichen ruber may be successive stages of the disease, which may be found on different parts of the skin at the same time; or they may have periods of alternation, interrupted also by more or less general and marked improvement. Again, the disease may be arrested in the papular stage, but more often it reaches the squamous type, to persist with shifting of location for years, perhaps never developing any pronounced furrowing of the skin, as in the rugous form.

Pruritis is often severe, especially in the squamous and rugous stages, though not constant, and is sometimes absent or slight in the papular form. When the disease is at all general, constitutional symptoms are usually felt, such as chilliness, rigors, aching and profuse sweating. These are more apt to occur before or with an aggravation of the disease. Then, also, burning and itching may torment the patient. Occasionally the general health may be little affected for years. One of my patients had been subject to the disease for nine years, with one apparent recovery for three months, and many remissions, but with each attack progressively extending until every part of the surface had been involved, and yet had suffered no material disturbance of general health and strength. In most recorded cases, however, watched through their course the health has given way to marasmus, exhaustion, etc., which have ended fatally.

ETIOLOGY AND PATHOLOGY.—Nothing positive is known regarding these. Heredity, age, sex or color have no etiological bearing, although, as in psoriasis, the disease attacks those who are apparently in good health, more often males than females, and the majority before middle life. That it is due to some obscure constitutional condition or diathesis is most probable from the fact that when the disease exists, slight local injury, as a scratch of a pin, may cause the appearance of additional lesions at the site of injury. This is said to be the immediate origin of the peculiar lesion of lichen ruber moniliformis. A similar traumatic origin of new lesions has been observed in lichen planus, psoriasis, etc. From the unusual irritability and intense itching, etc., in some cases, Unna concluded they were of nervous origin, *lichen ruber neuroticus*. The pathological changes that have been found were those incident to inflammation in and about the hair follicles, and not peculiar to lichen ruber. Some believe with Kaposi that the inflammation of the corium is primary, and that the epithelial changes are secondary. Others, with Robinson in this country, that trophic changes (hyperkeratosis) are primary, and that the vascular dilatation, enlarged papillæ and other inflammatory changes in the cutis are secondary. The corneous layer of the epidermis is thickened by the imperfect transformation and multiplication of the cells of the mucous layer.

DIAGNOSIS.—The mode of development of lichen ruber by small, isolated, scale-tipped papules, which do not enlarge but become aggregated into patches without any tendency to vesiculation or pustulation, serves early to distinguish

the disease from all other cutaneous eruptions, while the further evolution into infiltrated scaly patches with more or less attendant or subsequent exaggeration of the lines of the skin is sufficiently diagnostic. I have had one case of nearly universal *papular eczema*, some of the papules of follicular origin, with a very similar scaliness of the face to lichen ruber, and an unusual dryness and increase of the natural lines of the skin in some regions, which in spots closely resembled the latter disease; but the absence of uniform papules and white scales, the presence of blood-capped papules and the occasional occurrence of moist patches, cleared up the diagnosis. *Punctate psoriasis* and isolated papules of lichen ruber might be confounded. The guttate or other sized lesions of psoriasis which have grown from the punctate lesions by peripheral extension can be nearly always found, whereas the papules of lichen are of uniform size and do not enlarge. In the generalized form of psoriasis a differentiation from lichen ruber universalis may be difficult. Usually the latter has less abundant scaliness, but greater infiltration, and the palms and soles are relatively more often and intensely affected than in psoriasis. Moreover, the latter will usually show some areas of unaffected skin, or patches which are undergoing resolution. For differentiation from *lichen planus* see the latter.

PROGNOSIS.—This is generally unfavorable for permanent cure, if we accept the opinion of the majority of dermatologists. The sanguine predictions of complete recovery made by Continental observers are believed by others to be due to the probable inclusion of lichen planus with lichen ruber. In England, where the latter form seldom occurs, Malcolm Morris asserts that lichen planus is the original type. With that view, the prognosis would be generally favorable, because the latter, as seen in this country, is curable, and much the most common in occurrence. When the etiology of lichen ruber is known, some cases will very likely completely recover under improved methods of treatment.

TREATMENT.—Looked upon as a probable diathetic affection for want of a better conclusion, the first object of treatment of lichen ruber should be to attend to the waste and supply of the system, by regulation of quantity and quality of food and drink, sunlight, exercise, etc., and the active maintenance of the excretions of the body. In other words, physiological living. In the earlier stages, a vegetable form of diet is most often indicated, but in the more advanced cases, a sustaining mixed diet with abundance of fatty food, cream, butter, cod liver oil, etc., is usually called for.

Locally the skin needs mechanical protection and relief from the epithelial accumulations. The first may be obtained by applications of *bland fats* or *oils*, used as abundantly and frequently as required to keep the skin fairly smooth. The second end, in a measure, is attained by frequent *hot baths* which contain salt, borax, bran, or if the skin is not too much inflamed, friction with soap may be employed. The Turkish bath is excellent for those who can take it. The oily applications should follow immediately on drying the skin after the bath. Patches of thick scales can be greatly improved by applications of a

three per cent. *salicylic acid* ointment, or on small flat patches, by the same in collodion. Unna's salicylic acid plaster is also useful and convenient for the same purpose. *Pyrogallol* and *resorcin* may be used in the same manner, but cannot be applied to large areas, and present no advantages over the preparations mentioned. The scalp may be washed with tincture of *green soap*, dried and well oiled. The foregoing methods and the indicated drug will usually modify the itching and other local sensations, especially if care is taken to avoid changes of temperature or unusual fatigue.

Arsenic or its salts, especially *Nat. ars.*, is more often indicated than any other drug, and is to be administered in the first to third decimal attenuation. *Merc. cor.* is likely to prove helpful in suitable cases.

LICHEN PLANUS

(*Lichen ruber planus.*)

DEFINITION.—An inflammatory cutaneous disease, characterized by an eruption of papules, some of which are flat, angular, shining and umbilicated. These are usually of a dull red color and isolated at first, but may coalesce into linear or irregular patches, assume a purplish hue and sometimes become covered with thin scales.

The disease is modern in identity, having been first described from the observation of about fifty cases by Erasmus Wilson in 1869. It is not an uncommon affection in this country.

SYMPTOMS.—Lichen planus always begins with the development of discrete papules. The most characteristic become slightly elevated, smooth, angular with a pit-like depressed centre; they vary in size from a twelfth to a fourth of an inch in diameter, and also vary in color from a crimson red to a purplish or lilac hue. Both the size and color are apt to be uniform in a given case, but may vary quite widely in different cases. As a rule, the larger the papules the more angular in shape, some of the smaller lesions being roundish in outline. They generally show a tendency to symmetry and a preference for certain locations, such as the *flexor aspects of the wrists and forearm*, the inner side of the knee and the waist above the hips, but they may occur upon any part of the external surface, or upon the mucous membrane of the mouth. When patches are formed, it is not by enlargement of the papules, but by their multiplication, as in lichen ruber. Commonly these are small in area, often in lines or irregularly oblong shapes, parallel with the length of the limb; sometimes transversely and less frequently circular forms are seen. Occasionally the patches may be extensive, and a large portion of the surface may become involved, but the disease is never universal to the extent that lichen ruber or eczema may become. Generalized lichen planus is not very rare, however, judging by the cases which have been presented or reported at dermatological society meetings in recent years, in this and European cities. The disease may occur in, or assume atypical forms, by a primary ap-

pearance in unusual locations, or with a predominance of conical and convex papules. Some departure from the ordinary mode of evolution may occur, especially when the eruption is located on the lower limbs, to change the clinical course, such as considerable thickening of the diseased skin, *lichen planus hypertrophicus*; papillary outgrowths may take place, presenting a warty appearance, *lichen planus verrucosus*; or dense horny crusts may form, *lichen planus corneous*.

Although the papules of lichen planus never become directly vesicular or pustular, vesicles and bullæ have been in rare cases found associated with them, and the patches may become the seat of ulceration.

The *course* of the disease is variable. Sometimes it may be acute in its onset, rapidly spreading and short in course; more often, if acute in development, the course is chronic. Most cases are chronic throughout, and after months or years with or without treatment resolution occurs, papules and patches disappear, leaving behind slight atrophic depressions, decided and often persistent pigmentation. Rarely, severe and widely extended cases may go on to failure of health, marasmus and death.

ETIOLOGY AND PATHOLOGY.—Lichen planus usually begins in middle life, though it has been observed in infants under one year of age, and after three score and ten years of life. Crocker, who has observed upwards of two hundred cases, says the most common cause is nervous exhaustion, consequent upon strain, deficient or improper food, etc. In common with other investigators the editor has noted that a much larger proportion of his cases are among the brain workers of the well-to-do classes than among the working classes, who are more apt to be poorly nourished. At least four cases, under treatment during the last year, gave a *neuropathic* history. Leredee (*Annals of Dermatology and Syphilis*, July, 1895) is of the opinion that there may be profound alterations of the blood which form a pathological link between nervous troubles and the eruptions; that the latter and the subjective sensations arise from changed dermic conditions, due to a toxic substance in the skin or circulation. The essential chronic tendency of lichen planus certainly indicates a morbid systemic condition (diathesis), whatever may be the contributing factors which lead up to it and its inflammatory lesions. The latter (papules) are found chiefly at the mouth of the sweat ducts (the glands themselves are seldom involved) and appear due in the first place to a cellular infiltration in the upper part of the corium, pushing outward the little changed rete, which subsequently may, by proliferation of its cells, become thickened downwards by interpapillary growths, and upwards to form the chronic papules. A characteristic feature is the marked definition of the affected papillæ and sub-papillary layer from the normal tissue beneath. The corneous layer may be unchanged or even thinned, except at the mouth of the sweat ducts, where a horny plug forms and constitutes the minute central depression of the characteristic lesions. The hair follicles and sebaceous glands are not affected.

DIAGNOSIS.—In typical cases no difficulty will be found in recognizing the disease. The flat, angular, smooth, shining, umbilicated and purplish papules

are never seen in any other disease. Some one or more of these characteristics of the papules may be lacking, however, and when rather thick, scaly patches are formed, the disease may be mistaken for psoriasis or chronic eczema, but even in those cases nearly always there can be found near by some evidences of the characteristic lesions. The author had seen one case situated on the extensor aspect of the arms, which simulated *psoriasis* very closely, but the history of the papular origin, the thin, scant scales, purplish color and stains at the site of resolved lesions, served to distinguish it as lichen planus. Chronic *papular eczema* may sometimes exhibit isolated, flattish, smooth papules, but they are never angular or depressed in the centre. On the other hand, the eczema papules are likely to be excoriated, differently located, and may become moist unlike lichen planus lesions.

Lichen ruber is a rare disease as compared with lichen planus; its papules are conical, mostly situated at the hair follicles, and when aggregated in patches may become covered with abundant scales; it usually pursues an irregular course to a fatal termination. These and other differences will enable one generally to make a diagnosis by exclusion. It is only when there is a predominance of convex papules in lichen planus that difficulty may be experienced. Even then attention to the clinical history will usually remove any doubt. In typical cases of lichen planus the "pathognomonic gray points and striæ" said to sometimes dot or mark the red ground color of the papules may be of diagnostic value. Louis Wickham says the gray workings can often be found in typical forms, and they may be regarded as pathognomonic.

PROGNOSIS.—The health suffers little, as a rule, from lichen planus. Itching may cause much discomfort, and the eruption persist through a chronic course, even under treatment, but finally recovery follows, sometimes spontaneously, perhaps unexpectedly.

TREATMENT.—From the probable diathetic and neuropathic nature of this affection, it is apparent that diet, exercise, clothing, rest and all other means of *physiological living* should be carefully studied. Changes of scene, of climate and of occupation may benefit. Tonics (non-alcoholic) are often indicated. For this purpose the milder *high frequency currents* applied along the spine will benefit. Protection and relief of pruritus are demanded in most cases. The remarks about bland oils or fats and alkaline baths made under lichen rubra apply in case of lichen planus. *Liquor carbonis detergens*, one to fifty per cent. (gradually increasing), in solution or ointment, or *carbolic acid*, two per cent., with boric acid, ten per cent., used in the same manner, may be used for the itching. The editor prefers *calamine*, two drams, glycerine and rose water, each a one-half ounce to three ounces of milk of magnesia, as a topical application for adults. Local pathogenetic treatment may be needed for chronic infiltrated patches. *Salicylic acid* (ten to twenty per cent.) ointment, or fifty per cent. solution of *hydrogen peroxide* may be found useful. For the same purpose the *Röntgen rays* are serviceable. Exposures numbering from three to twelve, bi-weekly, using the same technique as suggested in the treatment of psoriasis, will relieve the pruritus, absorb the papules and cause

gradual resolution, accompanied by desquamation and in a few instances followed by pigmentation. *Phototherapy* has been recommended for localized types of this disease. For the internal remedy see indications for *Anacard.*, *Arsen.*, *A. hyd.*, *A. iod.*, *Berb.*, *Kali carb.*, *Ledum.*, *Mangan.*, *Merc. vivus*, *M. cor.*, *Nat. mur.*, *Nuz vomica*.

PARAKERATOSIS VARIEGATA (UNNA)

It can hardly be said with certainty that this is a distinct disease. First knowledge of it rests upon the observation and study of two cases which came to Unna's clinic at Hamburg. Since then about a dozen cases have been reported resembling more or less closely the first named. Most of these were observed on the Continent, several in England and two by J. C. White in this country. Pollitzer, who was a pupil of Unna's, describes the eruption as follows: "The greater part of the body was covered with a red exanthem, which formed an irregular network, leaving free, small, irregular, sunken patches of normal skin. The affected portions were but slightly raised above the normal surface; their borders were sharp, their cuticular areas but slightly marked, their surface affected by a fine lamellar desquamation, under which the patches had a peculiar waxy, reddish hue; their color was deeper on the more dependent portions of the body, but was not strictly uniform even for the same region, varying from yellowish-red to bluish-red. The larger patches appeared to the touch decidedly infiltrated, like an erythema papulatum; the smaller resembled recent lichen planus papules." The second case was very similar to the first, except that the color of the eruption was paler. Both were men otherwise in good health, and aged respectively thirty-three and twenty-seven. In one the disease had existed for four years, and in the other for seven years, with little change in appearance, and without subjective sensations. The cases proved obstinate to treatment, but finally yielded to free use of pyrogalllic acid externally and large doses of dilute hydrochloric acid internally.

Rare cases presenting similar lesions have been variously named as follows: *erythrodermie pityriasique en plaques disséminées* (Brocq); *lichen variegatus* (Crocker); *dermatitis variegata* (Boeck); *dermatitis psoriasiformis nodularis* (Jadassohn); *lichenoid eruption* (Neisser); *pityriasis lichenoides chronica* (Juliusberg). Hyde prefers to class all of these conditions under the general head of *psoriasiform dermatoses*.

The description and history of these cases show a certain resemblance to lichen planus, and it is possible they may have been anomalous cases of that disease. Physiological TREATMENT and minute doses of *arsenic* would seem indicated.

KERATOSIS PILARIS

(*Pityriasis pilaris*; *Lichen pilaris*.)

DEFINITION.—An accumulation of horny epithelia, which form small papules and plug the orifice of the hair follicles, usually situated on the extensor aspects of the extremities.

SYMPTOMS.—The papules are convex pin-head size, of the same color as the normal skin, or grayish, even blackish, from deposits of dirt. Occasionally they have a reddish tinge, *lichen pilaris*, a term no longer used to designate non-inflammatory papules. A hair may sometimes be found piercing the papule, but more often it is broken off or imprisoned within. If a papule is picked off, the depressed orifice of the follicle is seen. The intervening or adjacent skin may be normal in color, but is usually dry and sometimes scaly, as in mild ichthyosis.

The *location* of the disorder is commonly symmetrical on the extensor and outer surfaces of the arms and thighs, but is occasionally seen upon the trunk, and in rare generalized cases may occur, late in order, upon the face. When the papules are thickly set they give a nutmeg-grater feel to touch, but the number of papules and the extent of their distribution vary greatly, and sometimes are scarcely noticeable. Well-marked cases of some duration may show among the papules points simulating punctate scars, the site of resolved lesions.

ETIOLOGY AND PATHOLOGY.—Some authorities attribute a proportion of cases to long continued neglect of bathing the skin. It is not unusual to find a harsh condition of the surface in those who bathe infrequently, but in none of the cases of keratosis pilaris which I have seen could want of cleanliness be assigned as a cause. In some, the proclivity had apparently existed from infancy, but without any impairment of health or vigor; in all it began during the formative period of life, i.e., before the twenty-fifth year. In vigorous patients, an inherited predisposition would seem causal, while in those undergoing prolonged arsenical treatment or in those cachectic subjects who develop keratosis pilaris the cause can readily be seen. A few observers believe it a physiological excess rather than a pathological development, but inasmuch as the same condition is most pronounced in association with some cases of ichthyosis it is probably due to a like or the same constitutional tendency, though it is proper to say that some view the latter disorder as a deformity rather than a disease *per se*. The *pathological* cause seems due to an excessive cornification of the epithelia of the outer portion of the pilo-sebaceous duct, which, forming a papular-like mass, occludes the orifice of the hair follicle. If the mechanical pressure is sufficient, the superficial blood-vessels of the corium may become congested, producing the tinge of redness sometimes seen. This periglandular inflammation has been demonstrated by Giovannini, who claims that it is marked in a few cases. Atrophy of the hair and sebaceous structures may occur, leaving minute scars, or secondary pustular inflammation may rarely contribute to the same end.

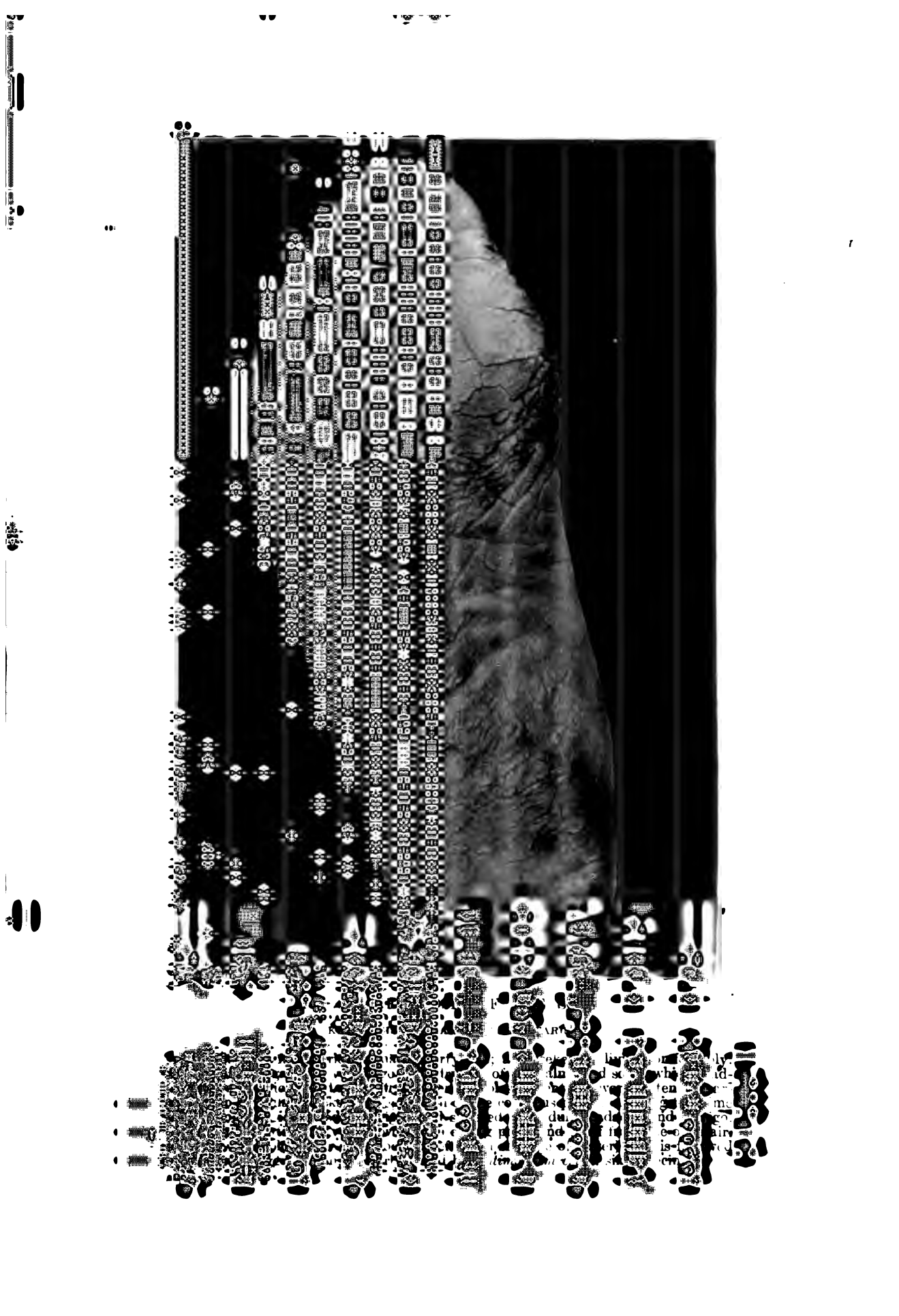
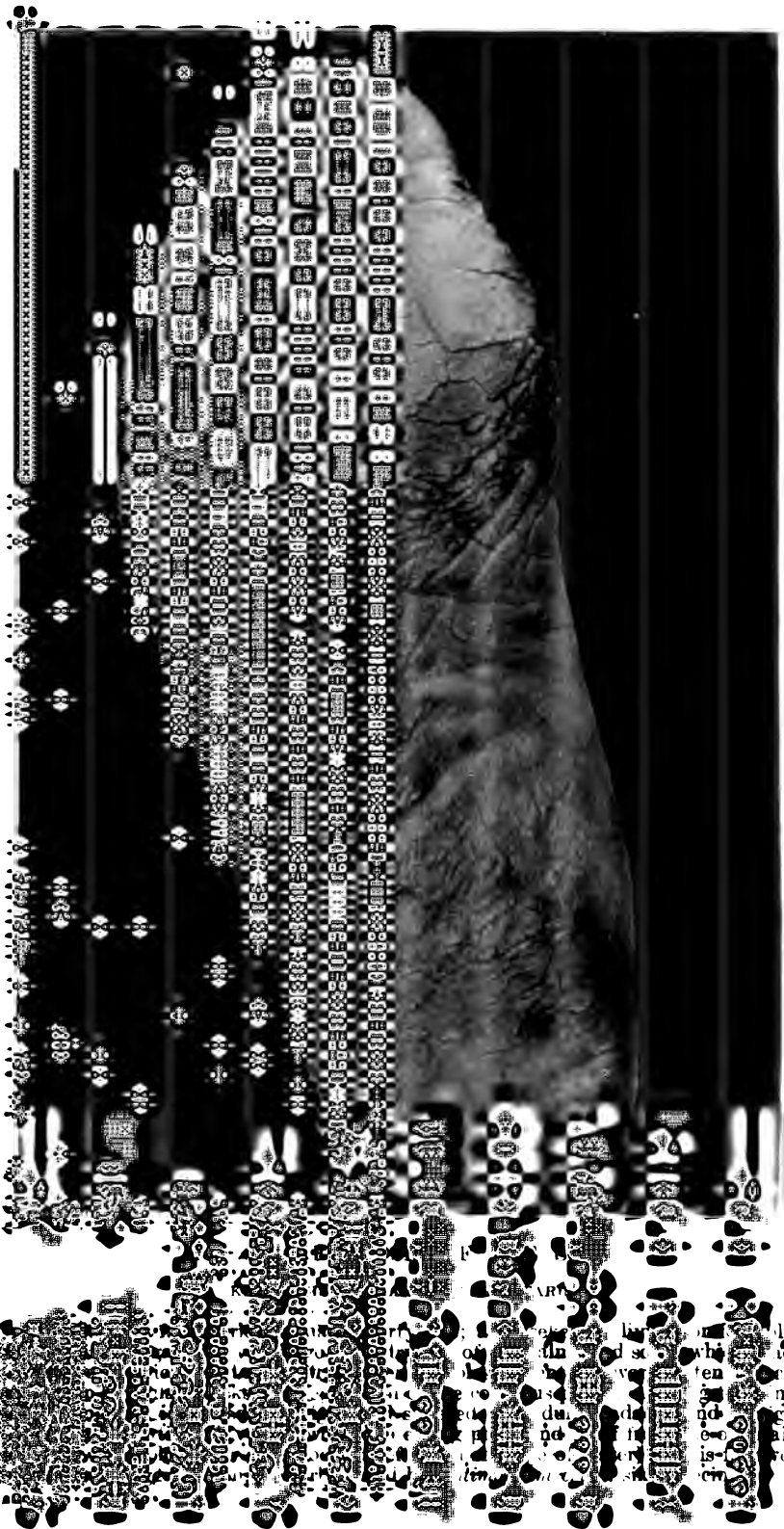
PROGNOSIS.—As a rule, all cases of the disorder can be cured by proper attention.

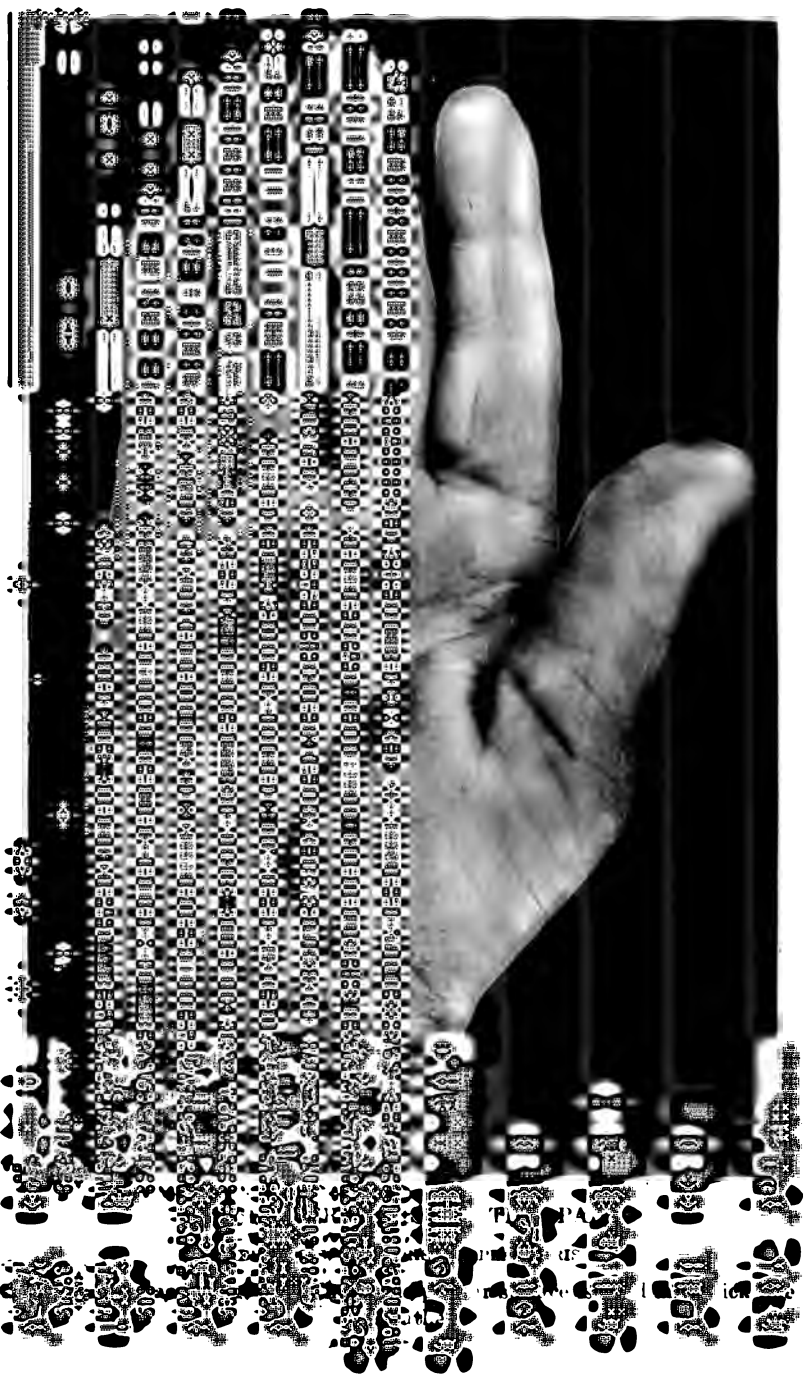
TREATMENT.—This is very simple and chiefly mechanical, to meet mechanical conditions which exist in all cases. It consists in a daily cold fresh or salt-water bath (using coarse toweling in place of a sponge) and followed by frictions with a very rough towel or flesh brush. Occasionally, in children, a light inunction of simple fat or oil subsequent to the bath is beneficial. This treatment should be continued for months or even years. For immediate use, the hot bath with soap may be necessary, twice a week, followed by the thorough application of lanolin or some simple oil or fat. If no departure from good health is shown by symptoms, a constitutional remedy should be given which is known to produce hyperkeratinization of the epidermis, or desquamation of its surface. Among drugs see indications for *Ars. alb.*, *Cal. carb.*, *Nat. mur.*, and *Staph.*

KERATOSIS SENILIS

The more or less general atrophy of cutaneous tissues which occurs in old age may sometimes have mingled with it local or general tendency to hypertrophic alterations. Among them keratosis is sometimes a feature. This may be slight, amounting to only a dryness and roughness of certain parts, as the back of the hands, the feet and on the face, or a wider extent of surface may be affected; rarely the whole body, which in severe cases is sometimes covered with horny, branny adherent (rarely greasy) scales. With these may be seen other changes of pigmentation and warty formations. The keratosis may be limited to the outer covering of verrucous growths, which are not uncommon in the aged, or connected with seborrhœic patches, forming greasy adherent plates.

The **TREATMENT** of these surface conditions of the aged consists in correcting, so far as possible, any general departure from health by physiological and other methods, and in aiding to improve the appearance and comfort of the skin by tepid baths, gentle frictions and moderate applications of bland fats. In trying to foresee the future course of these cases, the liability of cancer originating in the abnormalities of the skin of the aged should not be forgotten. In a number of cases in which epitheliomatous changes had begun, Hyde reports that the *Röntgen rays* caused a complete disappearance of the hyperkeratosis. Such remedies as *Baryta acet.*, *B. carb.*, and *Cal. phos.* are often indicated.





KERATOSIS PALMARIS ET PLANTARIS

(*Tylosis palmæ et plantæ; Ichthyosis palmaris et plantaris; Keratoma, etc.*)

DEFINITION.—A conversion of the epithelia of the palms and soles into dense, corneous plates, unconnected with intermittent pressure from occupation.

SYMPTOMS.—The disease occurs symmetrically both on the palms and soles. Occasionally the feet alone are affected, and more infrequently still the hands may be involved without the feet. It may be congenital or acquired. The disease may begin with an unusual dryness of the palms or soles, and no signs of sweat appear while the disease lasts. More often there is an excess of moisture or hyperidrosis, which may continue to appear at times throughout the course of the disease. When seen by the physician, the surfaces involved have usually become partly or completely covered with a firm, leathery, thickened, horny epidermis, which, if moderately smooth, may resemble the finished side of sole leather. Sometimes the surface is seamed, fissured and uneven, or worm-eaten in appearance. On the soles the skin in the hollow of the instep is exempt from the extreme effects of the process, though often dry and exfoliating. The sides of the heel and other borders of the sole may be more or less involved, but in less degree than the bottom of the foot. Usually there is some erythematous redness without heat at the margin of the more thickened epidermis, and this may extend well onto or over the dorsal aspect of the feet or hands, *erythema keratodes*. When the erythema and other changes occur in patches, it was called by Besnier *keratoderma erythematosa symmetrica*. On the back of the hands I have seen the extensor surfaces of all the fingers and distal half of the hand everywhere deeply red, and at times thickened so that cracks through into the corium occurred from tension in closing the hands. Even without the involvement of the dorsal surfaces, the hands are rendered stiff and tense by the leathery thickening of the palmar surface of hand and fingers. The skin of the wrists adjacent to the palms often shows the effect of the process by an exaggeration of the normal lines and the addition of new; while over the palm and fingers some of the natural lines may be obliterated or overshadowed by linear folds running in different directions, especially in a longitudinal direction on the fingers. In the smooth, leathery form in which the surface is habitually dry, the thickened epidermis is readily softened by a soakage in water and the abnormal lines temporarily disappear, but the condition is subsequently aggravated in every way. One or more of the *nails* may be lifted away from the nail-bed by masses of accumulated epithelium at the borders, and the body of the nail roughened and thickened by the perverted cornification. Occasionally in cases which last for some time the coriaceous plates may be spontaneously shed, to re-form after a longer or shorter interval. In rare instances variable disturbances in nutrition of the hair on the forearms, ankles or legs have been noted, either by an abnormal growth of hair or a comparative absence of hair. In the affected palms and soles there is seldom any disturbance of sensation.

There is commonly diminished sensitiveness to touch, and when the hands or feet are much used they may become sensitive to pressure, so that occupation with the hands or walking may be painful. There are often found varying general symptoms, such as headache, vertigo, etc., but no constant characteristic constitutional disturbances, except, perhaps, a slowness of the pulse in a proportion of cases, and then the general health seems little affected.

ETIOLOGY AND PATHOLOGY.—Heredity has been found as a predisposing cause in a number of cases, in one instance extending through generations. It is often congenital, though in such cases the disease may develop very gradually. In acquired cases excessive sweating (hyperidrosis) is a common antecedent and attendant condition. Some cases have been attributed to the use of arsenic internally. While nothing positively is known regarding the real etiology of this unusual disease, it is probable that the underlying cause is constitutional and gives expression to its peculiar features through the trophic nerves, or it is possible that the central nervous system may be the seat of the pathological cause. *Pathological* changes consist in a normal, though excessive, cornification of all layers of the skin. Vörner found no signs of inflammation. The condition is not dissimilar, microscopically speaking, to that found in callosities due to intermittent pressure.

DIAGNOSIS.—The distinctive features of keratosis of the palms and soles are its comparatively rare occurrence, symmetrical development, more or less horny thickening of the epidermis and the absence of any sign of inflammation. With these in mind there will be no difficulty in recognizing the disease.

PROGNOSIS AND TREATMENT.—In congenital and inherited cases complete recovery is rare, but the skin may be rendered soft and the patient comfortable by continued treatment. For all other types the prognosis is favorable for ultimate recovery, which may be often slow, but is sometimes rapid when the therapeutic indications are clear. When the latter are found to exist, no local treatment beyond cleanliness is needed. In many cases, however, in the absence of symptoms, a remedy has to be based on the pathological condition, and local mechanical measures are needed to aid the cure. The thicker corneous plates may be carefully shaved off with a sharp knife or razor, and fatty or oily applications made to soften and loosen the horny tissue. This can be followed by daily friction with ordinary or *green soap* and hot water, and re-anointing with simple fat. Removal of the thickened tissue may be facilitated by incorporating with the fat (lard) five to ten per cent. of *salicylic acid*; or on the soles Unna's *salicylic acid plaster* may be worn in the same way as directed for squamous eczema of the soles.

The *Röntgen rays* occupy an important place in the therapeutics of this condition. Almost uniform good results have been reported and in a number of instances one to two years have elapsed without a recurrence. Usually ten to twenty exposures are necessary, varying from four to ten minutes; the tube being at a distance of six inches.

The general health should be inquired into and all indications met by physiological and pathogenetic means. For choice of the latter see indications for *Ant. crud.*, *Baryta carb.*, *Cal. fluor.*, *Curare*, *Hydrocot.*, *Nat. mur.* and *Sulphur*.

ICHTHYOSIS

(*Fish skin disease; Xerosis; Xeroderma ichthyoides; Ichthyosis vera.*)

DEFINITION.—A congenital affection of the skin characterized by extreme dryness, roughness, more or less scaling of the surface, and sometimes by the development of warty looking growths.

The disease or deformity, as it is sometimes called, is not uncommonly seen in some form. These forms are fairly distinct in degree or type, and are known as xerosis or xeroderma, ichthyosis simplex and ichthyosis hystrix. The first two are general and really variations in degree, and often exist together on different parts of the skin; while the third is clinically distinct and more localized. All begin in early infancy and are believed to be congenital in origin.

SYMPTOMS.—The mildest form, **xerosis**, is the most common. In this the skin presents a dry, dirty, furfuraceous look, and feels harsh to the touch. The scales are turned up slightly at the edges, quite adherent, exaggerating the natural lines of the skin and contributing to its thickened appearance. While the whole surface is usually dry and darker in color, the most marked changes are commonly found on the extensor surfaces of the extremities, trunks and about the buttocks. Here also in some cases are found numerous scaly papules, or the condition which has been described as *keratosis pilaris*, and which may greatly add to the rough condition of the surface. The state of the skin is apt to be worse in cold weather, sometimes nearly disappearing in warm seasons, and in the mildest cases may, after a time, only show a lack of softness, and a tendency to crack, due to diminished secretion of sweat and sebum. Notwithstanding this period of improvement, the condition never quite disappears without treatment for many months at a time, and unless cured before is, in mature life, likely to become worse, though it may never pass into the more severe forms.

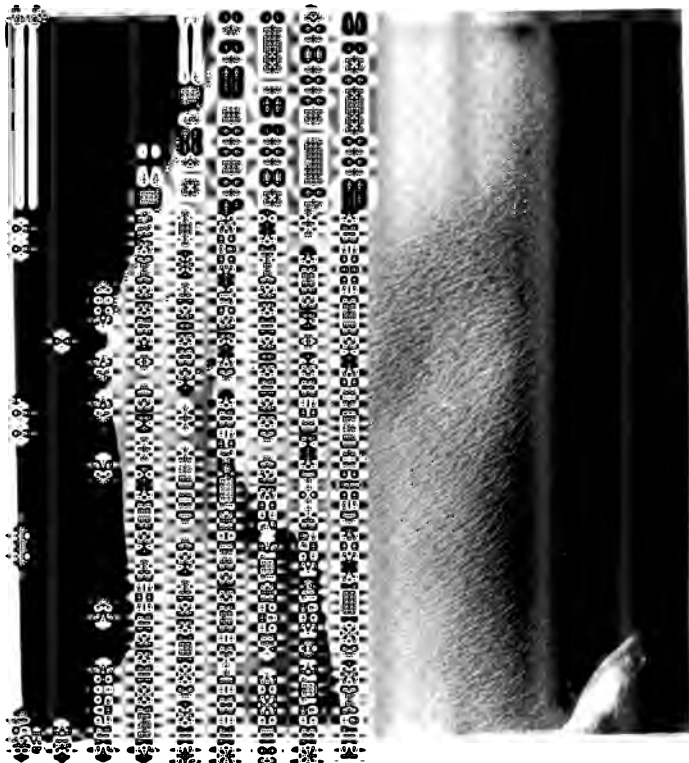
In **ichthyosis simplex** the changes in the appearance of the surface of the skin are more marked and characteristic on certain regions, while others are less changed or exhibit the same appearance as in xerosis. Like the latter, the most pronounced features of the disorder are seen upon the extensor aspects of the extremities, about the buttocks and shoulders, though in severe cases the marked characteristics may be widely extended. These consist in the early formation, following a dry, roughened surface, of large, angular, papery, corrugated scales, varying in color from a pearly white to a dirty white, rarely a greenish or blackish hue. The scales are firmly adherent with detached shining edges, which mark the interspaces between the scales and give to the sur-

face a tessellate pavement-like appearance, or resemble the skin of a fish, from which the name is derived. The most marked scaling is usually on the anterior surface of the legs from the thigh to the ankle. The flexures show the least change, and the palms of the hands and soles of the feet may be little affected beyond a hardening of the epidermis, giving to the surface a smoother look from obliteration of the smaller lines. So-called cases of *ichthyosis palmar* are usually forms of keratosis or callus formations. On the head the hair becomes dry and lustreless, and the surface of the scalp more or less branny; while the skin of the face is less scaly, it is often red, thickened, eczematous and fissured, especially in cold weather. In severe cases contraction of the skin may cause atrophy of the lobe of the ears and ectropion. As a rule, the disease is worse in cold seasons and better in warm. Rarely the period of aggravation may be the warm part of the year, probably when the perspiratory function is no longer sufficient to aid in equalizing the systemic temperature. Fully developed cases seldom show sensible perspiration on the surfaces involved; frequently, however, the flexures, axillæ, palms, soles and face may become moist in warm weather or during exertion, and rarely it may amount to a hyperidrosis of the palms, soles, etc. In middle life, there may be no apparent secretion of either sweat or sebum, yet the scales or horny plates often have a greasy quality and fat can then be dissolved out of them. The local sensations of itching or burning are sometimes complained of, especially when the skin is uncovered, but unless the disease is severe or the skin eczematous such symptoms are usually mild or absent. It is to be borne in mind, however, that the ichthyotic skin is sensitive to external cold, etc., and very subject to eczematous disturbances or other intercurrent inflammations. Individuals with xeroderma may be plump or even stout, but with well-marked ichthyosis simplex they are always thin, without in most cases suffering much impairment of general health.

Unusual clinical variations in the objective features of the disorder have led to the use of fanciful names from time to time to designate them. Some of them are introduced here because they still occur in works on dermatology, though nearly all agree that they ought to be obsolete, as of no value:

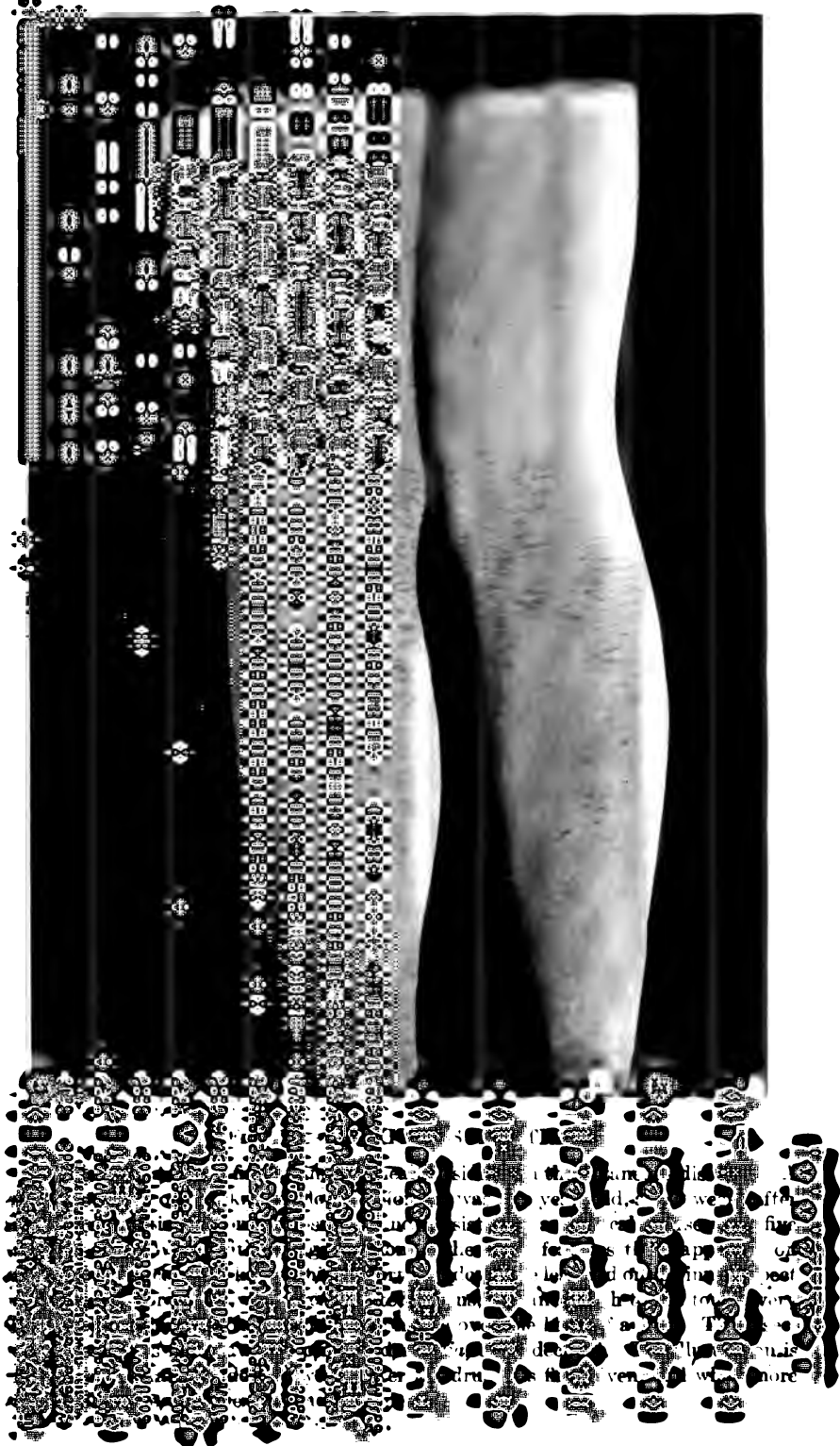
Ichthyosis nigricans indicates a condition of coloration observed in the older horny scales or plates, of a yellowish green or blackish hue, and is not very uncommonly seen on the anterior surface of the legs. When the adherent plates resembled the skin of a serpent, it was called *ichthyosis serpentina*, or, if more dense, like a crocodile's hide, *ichthyosis sauroderma*. *Ichthyosis nitida* stands for a peculiarly marked transparent and shining appearance produced by the detached portion of the scales, while the predominance of scales depressed in the centre and resembling a shield in outline was designated as *ichthyosis scutillata*.

Ichthyosis congenita (ichthyosis fœtale, harlequin fœtus, ichthyosis sebacea, cutis testacea) is employed to designate cases which are born ichthyotic, in distinction from most cases which develop in the first weeks or months after birth. A score or more of cases of rare conditions of the skin found at birth



SCABIES SIMPLEX

...antage. The entire skin is abnormally dry, ... the extensor surfaces of the thigh, arm ... is ... in ... support ... with ...



have been reported under the above terms; much confusion exists as to their identity. According to Kaposi some reported cases are such as he describes under *ichthyosis sebacea* or *cutis testacea*, as true cases of seborrhœa of the new born, and distinct from *ichthyosis congenitalis*.

Acquired ichthyosis beginning after infancy is rare, and its occurrence is doubted by some authorities. There seems to be no more ground for rejecting these rarer cases from the category of *ichthyosis* than there is for assuming that cases beginning late in infancy are necessarily congenital. Cases have been reported as originating between the twelfth and seventy-sixth year; the latter by Crocker, who speaks of it as "a typical *ichthyosis* of the ordinary form." The same careful observer has more recently described (*British Journal of Dermatology*, July, 1895, p. 217) a well-marked case in a man of seventy-four, which had gradually developed during the previous ten years.

Ichthyosis hystrix is a rarer form which sometimes exists in association with some manifestations of xerosis or *ichthyosis simplex*, but may occur without signs of the latter. It is never generalized or symmetrical, often has definite limitations at the median line on the trunk, but more commonly occurs in transverse lines on the body or in longitudinal lines on the extremities; the face is rarely involved. The lesions consist of reddish-brown, greenish or blackish growths, which may be of pin-head size with a horny cap, and project only slightly above the surface; or they may be in larger, warty, vertically striated, horny masses protruding half an inch or more from the surface of the skin. The so-called "porcupine men" who have been attractions at shows are extreme instances of this disorder. If the horny coverings of the growths are forcibly pulled off, bleeding points and hypertrophied papillæ are brought into view. On the palms or soles or other parts exposed to much friction or pressure these formations may give rise to much inconvenience and pain, though in these exposed locations, as elsewhere, they may be painless, and may be spontaneously or periodically shed. Papillary growths are sometimes found on the mucous surfaces of the mouth unconnected with so-called *ichthyosis linguae*, now known to be of a different origin. Rarely these have been noted in association with this affection, lack of complete development of the ear, mental weakness and other defects. *Ichthyosis hystrix* may be present at birth, but more commonly, like other forms, it appears some weeks or months later.

ETIOLOGY AND PATHOLOGY.—The causes are not known beyond the congenital origin (that is, nearly all cases begin in early infancy), and sometimes a more or less marked direct, interrupted or lateral heredity. The sexes are about equally affected, though Kaposi mentions a family in which all five sons of an ichthyotic mother were affected, and all three daughters escaped. Crocker also speaks of an ichthyotic father with a family of seven daughters and three sons, the latter being the youngest, in which, beginning with the eldest daughter, each alternate child, including the oldest son (four girls and one boy) were affected with the disease. The rarer acquired cases, and some of the *hystrix* variety apparently located on the line of the nerve distribution, may have a neurotic origin; but in general it can only be said that the skin

lesions of ichthyosis depend on a persistent proclivity to definite types of cutaneous disorder, whether originating before or subsequent to birth. The *pathological* cause is essentially a hypertrophy of the epidermis and the papillary layer of corium. However, the rete is often thinned and the papillary hypertrophy is often more apparent than real, the elevations being due to a dipping down of the horny layer with the resulting compression and elongation of the papillæ which often atrophy. Only slight evidences of an inflammatory nature are found in the cutis.

In well-marked cases of the hystrix form the papillæ are enormously elongated, with supra-imposed cones or caps of dense, horny epithelium. Kaposi has noted that this condition does not differ from that present in old warts.

DIAGNOSIS.—Commonly this disorder is easily distinguished from all others by its predominant feature of origin in early infancy, together with, in xerosis, the rough, dirty looking and deeply lined skin; in ichthyosis simplex, by the additional pavement-like scales and favorite sites of distribution; ichthyosis hystrix, by the warty growths, with a tendency to linear distribution. Chronic *papulo-squamous eczema* may rarely resemble xeroderma with or without intercurrent eczematous inflammation. One such case of eczema presenting a similar dry, rough and deeply lined skin on several regions of the body, I have seen in consultation. The history, origin long after infancy, the presence of papules, excoriations, etc., served to determine its nature. *Prurigo*, which often begins in infancy, may have a later likeness to ichthyosis, but in such cases the history and evidence that the infiltration, roughness, etc., of the skin are due largely to mechanical irritation of the surface from scratching will be quite apparent. *Xeroderma (Angioma) pigmentosum* is always most marked on the exposed parts of the skin, as the face, neck and hands, while the reverse is true of ichthyosis.

PROGNOSIS.—The fact that cases of ichthyosis have recovered indicates that the prognosis of mild forms is not entirely hopeless. Nearly all, however, while they may be made comfortable and continue in good general health to old age, cannot be promised permanent cure.

TREATMENT.—The skin of the ichthyotic requires mechanical protection in connection with cleanliness. The daily bath is beneficial to all; the water may be made unirritating to the dry skin by a small quantity of *salt*, *bicarbonate* or *biborate of soda*, or by bags of *bran* immersed in water, etc. If the scales are found to contain fatty matter, *soap* may be used in the bath; usually soap is contra-indicated. Immediately after the bath the affected skin should be oiled with any simple fat, choice being determined somewhat by the means of the patient. Lanolin and sweet almond oil (one to six) is the most elegant application, but fresh (or benzoated) lard, sweet oil, cod liver oil, mutton tallow, and all unirritating fats serve the purpose. If the whole skin is involved, these daily anointings require some expenditure of time, but the reward in comfort and improvement is ample compensation to most patients. When the means of a patient permit, change in the cold season to a

warmer climate is generally beneficial, or if possible change of permanent residence to a climate conducive to the comfort of the skin. Warm weather and moist atmospheres are the most suitable. In the hystrix variety, *steam, hot-air, alkaline and sulphur baths* together with *salicylic acid* ointment or plaster (ten to twenty-five per cent.) may be needed to remove the scales. Annoying projections may be removed by simple *excision* or by the *Paquelin knife*. Intercurrent diseases of the skin (eczema, etc.) should be treated on indications furnished by the whole pathogenesis, and any general or local disease or condition should receive attention so far as practicable by physiological and pathogenetic methods. As possible internal remedies see *Alumina, Cal. fluor., Sepia* and *Thuja*.

SCLEREMA NEONATORUM

(*Induration of the cellular tissue of the new born; Sclerema of the new born; Scleroderma neonatorum; Indurato telæ cellulosa.*)

DEFINITION.—A characteristic induration of the skin, either congenital or occurring soon after birth.

SYMPTOMS.—This affection, first described by Underwood in 1784, and which is now recognized as distinct from scleroderma or oedema of the new born, may be present at birth, or develop during the first few weeks of life, seldom after the first month, but rarely later. The strictly congenital cases, if not still born, die within a few days after birth. The disease begins, as a rule, in the lower limbs and extends upward over the thighs and back, thence to the chest, and over the remaining surface of the skin, becoming universal in four or five days. Exceptionally it may begin on the face and spread downwards, and at whichever point or origin the morbid process may be arrested when only a smaller or greater part of the surface is involved. The changes in the skin produce a hard, resisting surface, which cannot be gathered into folds or pitted on pressure. At first whitish or a dirty yellow in color, it takes on a deeper or livid hue; the natural wrinkles are obliterated, and the surface looks or feels smooth, polished, firm, cold and marbled. Even the face may be so immobile as to render the child unable to move the jaw, or open the mouth in the attempt to nurse at the nipple; frequently the infant lies motionless, with a hardly perceptible expansion of the chest, closed eyes, expressionless features, and in so rigid fixation of the whole body that raising it with one hand does not change its outline. The pulse and respiration may be less than one-half their normal frequency, and the temperature several degrees below normal, sinking lower as vitality is exhausted and death approaches. Fatal cases rarely live a week. Sometimes the disease is arrested, the temperature, pulse and respiration rise, and recovery may follow.

ETIOLOGY AND PATHOLOGY.—The real cause or causes are unknown. Whether a remote syphilis or some other constitutional vice transmitted from immediate or further removed generations predisposes to it or not, the disease

apparently may begin from any temporary cause which lowers vitality and the cutaneous circulation, such as lack of protection of the new born from cold, etc., after birth, affections of the digestive organs, pulmonary and cardiac disorders. Underwood and Parrot consider it "an institution disease, often in overcrowded rooms and associated with bad hygiene and improper feeding." Whatever the predisposing causes may be, the immediate one is a retardation of the circulation in the cutaneous capillaries. As to the *pathological* changes in the skin which follow a loss of vitality in the new born and result in sclerema, there is no unity of opinion. Some, with Langer, look upon it as a fat (stearine) infiltration and solidification; the latter asserting that the fat of the new born child is solid at a bodily temperature of 89.6° F., while that of adults solidifies only below 32° F. Others, with Parrot, believe that the solidification of the dermal tissues results from drainage of the watery fluid from the skin, as a consequence of diarrhoea, etc. Ballantyne holds that the disease is due to an overgrowth of connective tissue, leading to atrophy of the fat-cells and that the condition is a tropho-neurosis. See PROGNOSIS and TREATMENT under cedema neonatorum.

CEDEMA NEONATORUM

(*Edema of the new born.*)

A hardening of the skin of the new born from subcutaneous cedema was formerly confused with sclerema. The disorder begins in the lower extremities in the first week of life, or it may show at birth in the premature born. The legs, which are cold, livid and swollen, may be only affected; more often the cedema spreads up the thighs to the genitals, appears in the hands and arms, and sometimes becomes nearly universal. Sometimes the swelling may begin on the back or in the face, but the latter never becomes inflexible, as in sclerema. Like most dropsical conditions, the swelling is worse in the most dependent parts, as the posterior part of the calves and thighs. The surface pits on pressure, or is doughy and is only depressed by long pressure. The skin, however, can be pinched up and the marble-like hardness and appearance of sclerema is absent. The bodily temperature is usually lowered, and in severe cases the pulse and respiration are slowed, the child is too drowsy to nurse, and a fatal end may be reached in a few days, with or without complicating renal or cerebral disturbances. Exceptionally reactions may occur, with high fever, and an icteric hue of the surface may take the place of the livid color in fatal cases. On the other hand, when the disease is not completely developed or too extensive the symptoms may abate, the skin become softer and recovery gradually follow.

ETIOLOGY AND PATHOLOGY.—The predisposing causes are the same as noted in sclerema, to which may be added premature birth. The *pathological* causes, so far as known, however, are unlike the latter. A thrombus in the femoral vein was found in one instance, and Ballantyne, who found a nephritis,

thinks it may arise from renal, pulmonary or cardiac disturbances. On examination, there will be found an effusion of yellow serum into the subcutaneous tissue and the fat appears granular, dense and yellowish.

DIAGNOSIS.—The age of occurrence will distinguish both sclerema and œdema neonatorum from other affections attended with induration of the skin. No case of scleroderma has ever been recorded as beginning before the second year of life. Sclerema and œdema of the new born have many associated conditions in common, but in cutaneous development they are sufficiently unlike as to be easily recognized one from the other. The former is more general, is little influenced by gravity, the skin is denser, does not pit on pressure, and is usually attached to the parts beneath; the stiffness of the face and body may be so pronounced as to render them nearly or quite inflexible even when the latter is raised on one hand. On the other hand, œdema is more apt to be limited, is worse or may be limited to the most dependent parts; the affected skin is not so dense, usually pits on pressure, is not attached to the subjacent parts, and is seldom markedly immobile.

PROGNOSIS.—Partial cases of either disease may recover. In favorable cases sclerema may make the most rapid recovery, but in general its prognosis is more serious than that of œdema.

TREATMENT.—Measures to increase and maintain bodily temperature and the circulation of the blood are indicated in both diseases. An incubator can be used, if convenient, for the purpose of furnishing artificial heat, or hot flannels, cotton, wool, and hot-water bottles may be carefully employed. Frictions directed from the extremities toward the heart with warm, nutrient oils or fats may be of service. If the infant is unable to nurse, predigested milk or other liquid animal food may be fed by the mouth, or if unable to swallow, a rubber tube and syringe or stomach pump can be used to introduce nourishment into the stomach. Indicated drugs can be given on the tongue or by hypodermic injection, also stimulants if needed. See *Apis*, *Alumina*, *Bryonia* and *Secale*.

CLASS IV.—NEUROPATHIC AFFECTIONS

In this class have been placed disorders in which functional or organic disturbances of some part of the nervous system appear as the actual or most probable causal factors in the development of cutaneous changes. Some diseases which might well be included in this class are grouped elsewhere, because of their likeness in some way, or association with other etiologically different diseases, and confusion might arise from their wide separation. Others, perhaps, might better find a place in some other class, but are retained here for similar reasons. Unquestionably the nerve structures are the medium for the operation of causes in the production of a large number of skin as well as other diseases, but many diseases have other causes which overshadow it relatively as a primary factor. Of such may be mentioned, as an example, the parasites of so-called nerve leprosy. Some affections here included may be held as not belonging to dermatology at all, though possessing dermal symptoms, but their brief mention is justified to give a semblance of completeness to the grouping.

SENSORY DISTURBANCES

The senses resident in the normal skin are *common sensations*, which keep the consciousness informed of the ordinary conditions of a part, in excess, either pleasurable or painful, and with this is associated *temperature sensation*, though shown sometimes by disease to be distinct, as well as the most enduring of all senses; intimately connected with common sensation is *contact sensation*, which gives intimation of the presence of external things without specializing regarding their form, nature, consistence, etc., while for the latter function the highly endowed *sense of touch* (tactile and pressure sensation) is provided. Of these varied and composite senses of the skin it is probable that the normal appreciation of heat and cold is *least* often morbidly affected, and that the more ordinary contact sense is *most* often disordered, but it seems possible that any one or all may be subject to morbid disturbances. Perversions of sensation with no accompanying lesion of the skin are often complex, but may be observed in five forms, viz.: exaggerated sensation or hyperæsthesia; diminished or absent sensation, or anæsthesia; altered sensation, or paræsthesia; pain, or dermatalgia; and itching or pruritus.

Hyperæsthesia.—This occurs in nervous affections, and in functional or organic disease connected with nerve trunks, where the integrity of the nerve is preserved while its excitability is increased. It may be general or local, unilateral or symmetrical, the distribution giving a clue to the affected nerves. Every contact with the skin gives an exaggerated impression to the central organs. This is particularly frequent in hysteria, in which disease it is inconstant in location and duration. It is frequently observed in the onset of macular

leprosy. A few cases are idiopathic, or at least no cause is apparent. *Kalmia* is sometimes indicated in such cases.

Anæsthesia.—Sensation may be diminished or destroyed either by influences upon the end organs in the skin, or the destruction of conduction in the nerve centre, or by central disease of the brain or spinal cord. Peripheral causes of anæsthesia are abnormal cold or heat, narcotic agents used locally, or disturbance of circulation. Diminution of sensibility by freezing is utilized in the method of producing local anæsthesia by the ether spray. If the heat or cold is carried to the extent of destroying the cutis, the loss of sensation in the part becomes permanent. Narcotic drugs are only effectual when applied directly to the exposed nerve terminals, or used subcutaneously. Injuries to the nerve, pressure of tumor or scar tissue, and the effects of drugs or disease upon the central organs produce anæsthesia in the distribution of the affected nerve tissue. Anæsthetic leprosy is so designated from its characteristic symptoms. In these cases sometimes extensive burns of the skin may occur without producing pain. In hysteria, anæsthesia is as capricious a symptom as are its other manifestations. There may be loss of sensation to pain in some instances without impairment of touch, or increased sensitiveness to pain with loss of contact or ordinary sensation (anæsthesia dolorosa of Romberg). Among indicated drugs see *Populus cand.* and *Secale*.

Paræsthesia.—Symptoms of sensory irritation which do not usually amount to actual pain, or are unlike in kind from the usual feeling experienced from similar stimuli, are grouped under the term paræsthesia. They are usually sensations due to abnormal conditions in the nerves themselves, and may include one or all of the elementary forms of sensation, defined by such terms as formication, prickling, numbness, burning, "the velvety feeling," etc. True paræsthesia are indications of grave central or peripheral nervous disorders. While the abnormalities of sensation may be said to include a multitude of sensory perversions, in many instances they merge into hyperæsthesia or anæsthesia, or both. For instance, in syringomyelia the application to the affected skin of a hot or cold substance may give rise to a painful sensation without any appreciation of the temperature. The strictly painful paræsthesia, however, is known as—

Dermatalgia or Neuralgia cutis.—This is the condition in which sensations of pain in the skin are symptomatic of sensory irritation, not depending on contact and with no accompanying cutaneous lesion. The pain experienced varies in character, including burning, stinging and darting sensations, but particularly varies in degree, being often intensified upon the slightest touch of the clothing from the existence of hyperæsthesia. In *locality* it is usually limited to small areas of the surface, more particularly the hairy parts, the scalp and legs. It is most often found in the female sex. Frequently observed in locomotor ataxia, it is also symptomatic of general systemic disease, such as rheumatism and syphilis; less general disorders such as diabetes and polyuria, and is also possibly symptomatic of malaria, hysteria, anæmia, etc. It sometimes seems to be due to exposure to cold. Dermatalgia is usually to be ex-

pected to last several days or even weeks before disappearing. To *diagnose* it from ordinary neuralgia and muscular rheumatism note that the painful sensations are very superficial in well-defined areas of the skin. TREATMENT consists in attention to the underlying causal condition and the use of an indicated drug. See *Arnica*, *Bell.*, *Kalmia*, *Secale* and *Sulphur*.

PRURITUS

This is a form of paræsthesia which is unique, in the fact that **itching is the sole symptom of the disease**, though scratching for relief may produce excoriations of a multiform character. Itching is a general term for a symptom occurring in some form or degree with many cutaneous eruptions, but *pruritus* stands here for a *form* of itching which constitutes the disease, though the impression on the senses may be as if something was present on the part or parts where the sensory disturbance appears. The sensation may be one of pure itching or a variation therefrom of a more or less distinct tingling, biting, crawling, etc. At times of slight degree or inconvenience, at others or, in other cases, tormenting and irritating to the nervous system to the verge of mental depression or disorder. Certain conditions of aggravation and amelioration point to the *sense of contact* as the chief source of error in this disease. A gentleman under my care with perineal pruritus experienced this one unbearable aggravation when sitting. Hence he was debarred from dining out, and as his tastes ran in that direction he suffered accordingly.

Pruritus may be *defined* as a functional sensory neurosis of the skin characterized only by itching. To this condition Bronson has given the distinctive name of *pruritus essentialis*. This may be *universal* in the sense that it may occur alternately here and there on any part of the surface without order or regularity. It may be pretty constant, intermittent or remittent, is often aggravated by changes of temperature, and is usually worse at night.

Pruritus senilis designates a general form of cutaneous itching supposed to occur with or after atrophic or senile changes in the skin, incident to old age, and unconnected with the common causes of itching which may prevail late in life as well as at other periods. Probably in most cases of purely senile pruritus the atrophic changes or effects are in the peripheral nerves, but they may be central or intermediate.

Pruritus hiemalis or "winter itch" is a general form which appears due to the cold season, occurring only in winter. It was first described by Duhring, who noted its most frequent occurrence upon the non-hairy surfaces, as about the ankles for instance; but it also appears on other parts of the lower extremities, arms and trunk, rarely affecting the surfaces commonly exposed to cold. It often begins with the cool days of fall and may be troublesome until the warm days of spring, or it may subside in winter. Often it is hardly noticed during the day, beginning in the evening or on removal of the clothing at bedtime. At the latter time there may be noticed more or less associated con-

traction of the skin known as "goose flesh," which may be said to be a physiological effect of cold, but may be in this connection a link in the pathology of this form of pruritus. With the warmth of the bed and relaxation of the skin, however, the itching does not always subside, but may continue to disturb the sleep for hours. Occasionally prurigo-like papules have been found on the parts affected, probably a result of scratching. Practically of the same nature is *pruritus aestivitis*, described particularly by English observers as limited to the warm seasons, and not connected with miliaria rubra.

The *local* forms of pruritus show a chief preference for the genito-anal regions, but may occur elsewhere on the surface, following perhaps a cutaneous nerve, and occasionally affect the palms and soles (*pruritus palmæ et plantæ*) in association with hyperidrosis, gout, malaria or asthma. In a mild way it is not very uncommon on the face, particularly at the angle of the nose or mouth, and I have seen one severe case which was confined to the scalp. Itching of the Schneiderian membrane of the nose (*pruritus narium*) precedes or accompanies rose or hay asthma, may follow the use of opium and its alkaloids, and has occurred in children from irritation set up by pediculosis capitis or from intestinal parasites.

Pruritus progenitalis in many cases will have existed for some time before advice is sought for it, and although giving a history of primary pruritus without lesions, secondary eczematous changes may be found in either sex, but most frequently in men. In the cases under my observation the aggravation of the itching was not apparently dependent on any increase of the eruption. Hyperæsthesia is probably the primary local condition in the development of the disorder.

Pruritus vulvæ may affect all the external parts and extend into the vagina or beyond the genitals; more often it is confined to the labia majora, less often to the labia minora, introitus vaginæ or clitoris. In severe cases the itching is intolerable and demoralizing, but fortunately in a moral sense it is largely a disorder of mature life, and dependent on some general or reflex condition. Some severe cases are due to glycosuria, uterine or ovarian diseases.

Pruritus scroti is the form usually met with in the male, though the perineum and anus are only less frequently affected. From the scrotum it may seem to extend on to the penis more or less. I have never seen a patient, however, who complained of the characteristic itching on the penis except in association with eczema or recurrent herpes.

Pruritus ani is a very common disorder in both sexes, and at all ages, either as a primary or secondary neurosis; or in association with local anatomical changes, such as hemorrhoids and rectal irritations, eczema and fissures at the outlet, hyperidrosis, constipation, etc. In severe cases it is one of the most distressing and exasperating forms of pruritus.

ETIOLOGY AND PATHOLOGY.—Of the various sensory neuroses of the skin, hyperæsthesia, anæsthesia, paræsthesia, etc., it is chiefly the effects of the first and third that give rise to pruritus, and which concern the dermatologist. Strictly interpreted pruritus is a form of paræsthesia, but is here considered

as a distinct clinical entity. The causes which underlie these disturbances of the peripheral nerves may be congenital or acquired, local or general. The general nervous state known as hysteria may produce them, as well as other exaltations and depressions of the nervous system. Noxious substances or an excess of certain elements circulating in the blood may operate on the central or peripheral nerves with like results, as in jaundice, gout, diabetes, nephritis and from certain drugs. Some of the latter, as opium, produce pruritus apparently through primary anæsthetic effects on the skin. Numerous local irritations widely situated in different cases may produce reflexly subjective sensations in the cutaneous nerves, such as gastro-intestinal and genito-urinary disorders. The casual effects of heat and cold have been mentioned. Lastly the neurotic impress may arise in the skin itself by muscular contractions, as in the familiar "goose flesh," or from senile degeneration involving as well the terminal nerve fibres, as in pruritus senilis. Mental impressions may produce temporary pruritic paræsthesia, as may be often noticed by the action of some among those present when a case of pediculosis is exhibited or even discussed. But all persistent disturbances of this kind fall within the domain of nervo-mental diseases, as in fact do many cases with sensory disturbances of the skin. Some local causes of pruritus may possibly initiate the hyperæsthesia as well as act as exciting factors. Thus pruritus ani and vulvæ in children may be due to ascarides in the rectum or even in the vagina. In older people, hemorrhoids, constipation, excessive local perspiration, growths which obstruct and produce hyperæmia of the skin may operate in the same manner. The causes which produce itching as a symptom of the eruptive diseases of the skin are not included here, though they should always be held in mind and excluded in searching the etiological field of pruritus essentialis, particularly the animal parasitic affections. Notwithstanding diligent search there will be many cases in which no cause is apparent, and we are forced to call them idiopathic. In *pathology* the disease is a sensory neurosis due to irritation directly or reflexly of the nerve supply of a part at some point between the central origin and distal terminations.

DIAGNOSIS.—Itching being the one diagnostic symptom it is only necessary to exclude other pruritic affections of the skin to establish a diagnosis. The absence of eruptions (except excoriations from scratching) makes this usually easy. *Eczema* may be secondary to an essential pruritus and obscure the nature of the primary disturbance. The history of origin will generally clear away this doubt. *Parasites* are not to be forgotten as possible factors even in unusual locations, and at times on the cleanly. For differentiation of pruritus from *prurigo*, see the latter.

PROGNOSIS depends upon the discovery and eradication of the cause. Pruritus hiemalis is apt to recur the next season, and the chances for a permanent cure in pruritus senilis are poor.

TREATMENT.—Causal methods are first in order and importance. As these are sometimes seated in the nervous system, authorities on diseases of that part of the system may need to be consulted. General, special or local causes having

been sought out, if possible, when found should be treated on lines laid down for those various conditions. If due to hysterical perversion; gout, constipation, etc., physiological and pathogenetic means must first be employed to remove those factors. Strictly local forms of pruritus, as about the genitals and anus, should receive a careful investigation and search for local causes, which may demand local treatment for their correction. This applies particularly to pruritus ani, whether found at or about the orifice or higher up in the rectum. Fissures and other tissue changes at the anus may be treated locally in the same manner as directed for eczema involving the same parts. Any of the internal viscera may need attention before the pruritus can be relieved. The use of sedatives and narcotics is to be discouraged except in extreme cases, and even then the patient should be ignorant of the drug used. Local palliative treatment may be necessary and often mild applications, such as very hot or very cold water, alcohol, solution of bicarbonate or biborate of soda, or better than all, peroxide of hydrogen may be comforting, and being only local in their effect do not interfere with an indicated drug. Of the pathogenetic anti-pruritic agents, which should be used cautiously, *carbolic acid*, one to five per cent. in lotions, or five to twenty per cent. in oils or liniments, easily appears the best. These applications should not be continued nor applied to large areas. *Orthoform*, *iodoform*, *calamin*, *ichthyol*, *resorcin* and *liquor carbonis detergens* may likewise be used. The application of the *static* roller electrode down the spine or a similar use of the *high frequency currents* or general *galvanization* will occasionally give relief in a pruritus of large extent. The editor recommends the direct application of a suitable electrode connected with the D'Arsonval-Oudin *high frequency currents*, to all forms of pruritus of the anogenital parts. The *Röntgen rays* have also relieved similar conditions in these parts, but should be preferred for localized pruritus in other regions, because of the danger of producing sterility when used in the genital region. *Radium* (200,000 radio-activity), when applied to two severe cases of pruritus vulvæ for fifteen to forty-five minutes, gave complete relief for four or five days. The treatment was repeated six times in one case and eight times in the other, and both made complete recoveries with the aid of internal medication.

Among curative remedies *sulphur* most often meets the indications, but there are many drugs which may be adapted to individual cases. See *Acon.*, *Agnus cast.*, *Bovista*, *Calad.*, *Cal. phos.*, *Canab. Ind.*, *Canth.*, *Colch.*, *Conium*, *Cycla.*, *Dulc.*, *Hydrocot.*, *Kreos.*, *Mangan.*, *Mez.*, *Nat. mur.*, *N. phos.*, *Olean.*, *Opium*, *Populus cand.*, *Rumex crisp.*, *Sulph. acid.*, *Urtica urens*, and *Zinc*.

PRURIGO

DEFINITION.—A chronic sensory-motor neurosis of the skin, characterized by excessive itching and by the immediate or secondary appearance of small, discrete, colorless or pale red papules, chiefly on the extensor surfaces, usually beginning in early life and more or less constantly recurring for years, often throughout life.

Prurigo is more common in Continental Europe (chiefly in Austria) than in England or America, but in its milder form it is not a very rare disease in this country. Its early origin, characteristic pruritic and persistently recurring lesions with their distribution, give to it a clinical distinctness, especially in comparison with pruritus, to which it is so closely related in origin. There are two forms which differ only in extent and degree, but never change from one to the other in their course. The milder is known as prurigo mitis, and the severe as prurigo ferox.

SYMPTOMS.—**Prurigo mitis.** When seen in its earliest stages the eruption may consist of urticaria papules, with the usual sensations and features of that disorder. Within a few months hemp-seed to pin-head or larger papules appear, at first the same color as the skin; they can be appreciated by touch better than by sight. The intense itching causes some of them to be scratched, when they may become a pale to deep red color, or if torn, capped with dried blood, all of which give to them objective prominence. Later the continued itching and reluctant scratching leads to thickening of the skin, pigmentation in streaks or patches, exaggeration of the natural lines, and some mealy desquamation of the surface. Commonly the eruption is limited to or most abundant on the anterior aspects of the legs, front and outer surfaces of the thigh, extensor surfaces of the arm, dorsum of the feet, on the buttocks and trunk, and less often on the face. The scalp may show some excoriations, and the hair after a time becomes dry and frayed at the ends. The real character of the disease may sometimes be obscured by the secondary bloody crusts, pustules of various sizes, wheals, and more or less scaling of the thickened epidermis, or by well-marked eczematous inflammations and lesions. Careful search, however, will nearly always reveal some characteristic papules, perhaps connected with lanugo hairs which have not been torn away by scratching. In well-developed cases there is always enlargement of the glands in the groin, sometimes presenting massive tuberosus swellings, while the glands of the axillæ and above the elbow are somewhat thickened. The glandular swellings remain even during periods of remission of the other symptoms of the disease, as often occurs during the warm season.

Prurigo ferox or **agria** is the name given to severe types of the disease which may be widely distributed, and result in pronounced eczematous, pigmentary, ecthymatous and hypertrophic secondary changes, probably due to great neglect or extreme poverty, and hence seldom seen in this country, where bathing is viewed as a virtue and poverty almost a crime. The cutaneous

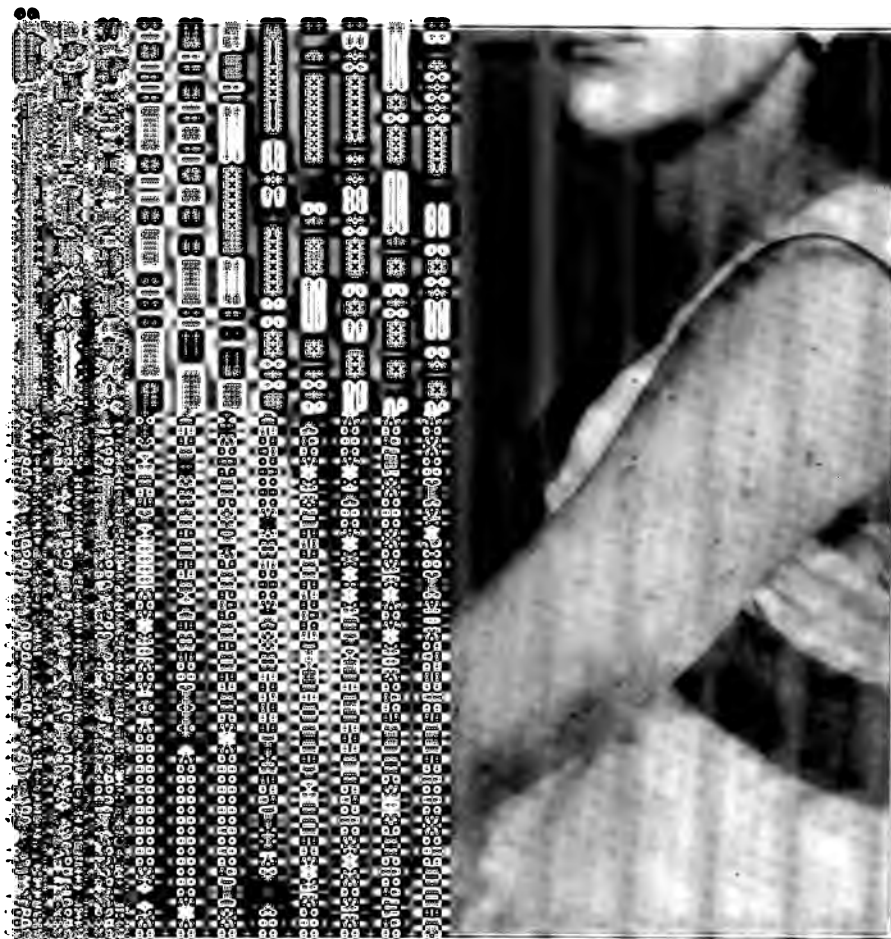


FIGURE 1. URIGO MITIS

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changes are most marked from above downwards, the extensor and other aspects of the legs presenting the worst appearance, while the flexures of the joints remain unaffected. The sufferers from the aggravated form of the disease are described as pitiable subjects, with joyless days and intolerable nights of itching, scratching and fitful sleep.

ETIOLOGY AND PATHOLOGY.—The disease, as a rule, begins in infancy or early childhood, yet cases have been recorded as beginning between the fifteenth and thirtieth year. One of my own cases began in the fifth year of life. Boys are more subject to the disease than girls. Want of proper food and cleanly living is found in the history of most cases, but not always. The scrofulous taint has been occasionally observed as a probable predisposing cause. In a few cases no causal factors or conditions have been found to explain the origin of the disease, which, on the whole, is obscure. Its *pathology* is not much more satisfactory. While the distinctness of the prurigo papule is generally admitted, whether it is primary or secondary is in dispute. The weight of evidence seems to be that it is in nature a senso-motor neurosis. The fact that urticarial lesions sometimes precede the real prurigo papules supports this view, as does the history of the earliest beginning (a period rarely seen by physicians), furnished by the patient or some member of the family, that the itching began without any eruption. The later histological investigations tend to show that the papules are principally connected with the ducts of the coil glands rather than chiefly with the follicles of the lanugo hairs, as advanced by Auspitz and others. White gives as his opinion that it is a condition allied to pruritus and urticaria, and not to be distinguished from them in its early stages.

DIAGNOSIS.—A well-developed case of prurigo is easily recognized by its characteristic features, especially if dating from infancy. At the very early stage *urticarial* papules may mark its nature, but a few weeks or months will remove all doubt. When complicated with eczema, it may be difficult to differentiate it from *chronic papular eczema*, which exhibits sometimes a few colorless papules, and may have the same sites of preference on the extensor surfaces; but there is not the same exemption of the flexures, the colorless papules do not predominate, and papular eczema seldom dates from infancy without moist lesions, crusting, etc., or long periods of intermission from the disease. Moreover, the glandular enlargements in the groins are seldom excessive, as they may be in prurigo. *Ichthyosis* shows a preference for the same locations, but is characterized by polygonal scales, not papules, is not attended with much itching, and if complicated with eczema, the latter is not persistent or uniformly papular. *Pruritus* does not exhibit a persistent eruption of papules, and though lasting a long time, does not result in a thickening of the skin as found in prurigo. Then, again, there are differences in age of occurrence and location, as a rule. Pruritic eruptions due to animal parasites can be excluded by absence of the ordinary peculiarities of the latter lesions.

PROGNOSIS.—The hopeless prognosis made by the older Hebra is no longer entertained. All cases of prurigo mitis, whose hygiene and nutrition can be

improved, are probably curable, and doubtless the same is true in only a lessened proportion of cases of prurigo ferox seen during childhood. It may last with variable intensity through life if not relieved by treatment, but frequently tends to disappear in advanced years.

TREATMENT.—Physiological methods must be employed to improve the general mode of living of each patient in proportion to their needs and so far as practicable. If children can be taken from homes of want and filth and placed in a suitable hospital, their chances of immediate gain are much increased. Here cleanliness, rest in bed and a nourishing diet put them soon in a way to experience the best effects from internal medication. A daily warm bath with soap or bicarbonate of soda and water should be taken, to be followed by anointing with any simple fat or oil. This softens and protects the skin and relieves the more intense itching. Wrapping the affected parts in rubber tissue sometimes gives relief, and is especially adapted to the more severe cases. If pustular lesions or eczema complicate prurigo, they may first need attention. Then the bath may need to be short and hot rather than warm, owing to the liability of any but hot water aggravating the eczema. *Peroxide of hydrogen* in full strength of the sixteen volume solution or diluted one-half applied to the circumscribed patches will be found beneficial to both the eczema and prurigo, and its use can precede the daily anointing. In prurigo mitis further local treatment will seldom be needed, but these simple means of cleanliness and protection must be kept up, not only during the existence of the disease, but occasionally for some time thereafter, to insure a good surface condition of the skin. Prurigo ferox rarely occurs in this country. It is probable that with the marked thickening of the skin present in that form, other local measures beside cleanliness and protection might be required to effect relief or possible cure. Patients who possess means to visit the natural sulphur baths may find a course thereof beneficial. Kaposi states that he has treated all cases of prurigo for the last ten years locally with *naphthol* in the strength of one to two per cent. in ointment for children, to five per cent. for older persons. This plan, he says, "possesses merely the advantages of cheapness, convenience and cleanliness, inasmuch as baths are unnecessary, the remedy has no disagreeable odor, does not soil the linen, and can be used conveniently." The Wilkinson salve, composed of tar, sulphur and green soap, has been used with success in many cases. *Ichthyol*, *diachylon* and *carbolic acid* ointments may likewise be used.

The indicated remedy internally often has a prompt effect in relieving the itching, improving the skin and general health. One of my cases in which *sulphur* was plainly indicated improved at once without any auxiliary local measures, attention to diet or other matters of hygiene. For other remedies see *Alumina*, *Ars. iod.*, *Cal. phos.*, *Led.*, *Mangan.*, *Rumex crisp.*, *Sil.* and *Zinc*.

URTICARIA

(Nettle-rash; Hives.)

DEFINITION.—A senso-motor neurosis of the skin, characterized by rapidly appearing, ephemeral, pinkish-white or reddish elevations of the skin, known as wheals, and attended by burning, stinging or tingling sensations.

SYMPTOMS.—The lesions of urticaria may appear suddenly without previous symptoms, or there may be prodromal indisposition, such as loss of appetite, headache, lassitude and mild fever for a few hours or a day. The eruption usually occurs in hard, semi-solid, roundish or oblong elevations of the skin, of an apple seed or larger size, averaging the size of a large bean; at first red; as they develop they become white in the centre, or they may stop at the red stage. Occasionally the wheals may be very small and it is then termed *urticaria papulosa*. This form is quite common in childhood. Rarely the other extreme in size is reached, and large or giant wheals are seen, egg sized or larger, chiefly situated on the abdomen or buttocks, *urticaria gigans*. Scratching the skin to relieve the itching may give rise to serous effusion at the apex of the wheals or change them into lesions of a deeper color and longer duration, and sometimes the excoriations are tipped with blood crusts. Even without frictions occasionally vesicles or bullæ constitute a feature of the efflorescence, *urticaria vesiculosa* or *bullosa*. Again tubercle-like swelling (in giant urticaria) may characterize the wheals, *urticaria tuberosa*. Occurring in portions of the skin which is quite lax, there may be considerable œdema, *urticaria œdematosa*; on the face this form may close the eyes, and in the mouth may threaten suffocation for a short time. Another form of œdema often included as a form of urticaria, known as *acute circumscribed œdema*, or *Quincke's disease*, lacks the sensations and changes of color of true urticaria, and should therefore be excluded. Sometimes the wheals become hemorrhagic, or develop at the sites of hemorrhage in the skin, *urticaria hemorrhagica* or *purpura urticata*.

Artificial wheals can often be excited in the unaffected skin of a patient with urticaria by drawing the point of a pencil or the finger nail across the skin, the eruption corresponding to the line drawn. In this way letters and other characters may be made to appear. Cases showing evidences of this strong disposition are named *urticaria factitia*. Linear or welt-like lesions may, however, spontaneously appear. The individual lesions in urticaria are usually very evanescent, sometimes appearing and fading away in a few minutes, rarely lasting more than a few hours, and the whole attack seldom exceeds one or two days, in which several outbreaks may occur on the same or different regions of the cutaneous surface. When only one crop appears, more often secondary to gastric symptoms and fever, it is sometimes called *urticaria acuta*. The chronic form, *urticaria chronica*, either from unusual persistence of the lesions (*urticaria perstans*) or more frequently from continuous recurrence (*urticaria recurrens*) is due to some cause not discovered or not removed. In such cases

the eruption recurs at regular or irregular intervals for months or years. Urticaria wheals may be few or many; they most frequently appear on the abdomen, chest and extremities, but they may develop upon any part of the skin and occasionally upon the mucous surfaces; they may occur at any age, but are most commonly observed during childhood.

ETIOLOGY AND PATHOLOGY.—Urticaria may be idiopathic or symptomatic in origin, always admitting the existence of a certain predisposition. The causes of the former variety probably act directly or reflexly on the peripheral vaso-motor system of nerves, and embrace a long list of external irritants, among which are the bites of insects, contact with certain kinds of shell-fish, with certain kinds of plants, particularly the *urtica urens*, from which the disease derives its name. It may be occasioned by exposure to cold air, or other climatic influences; by the contact of too heavy or too closely worn clothing; by mechanical or medicamentous applications, or by mechanical or surgical traumatisms. In many instances the urticarial eruption is not limited to the site of the irritation or injury, but invades a much larger area.

Symptomatic urticaria is due to equally differing internal conditions, though it is estimated that ninety per cent. arise from disturbances in the alimentary canal, due to over-indulgence in, or idiosyncrasy regarding such articles of diet as oysters, lobsters, eggs, pork, sausage, cheese, strawberries, dates, raisins, figs, raspberries, gooseberries, mushrooms, salads, spinach, pears, oatmeal, beans, onions, almonds, and other nuts; canned fruits, vegetables and potted meats; honey, confectionery, tea, coffee, cocoa, beer, champagne, or other alcoholic beverages. A similar idiosyncrasy to large or small doses of certain drugs leads to attacks of urticaria. Such effects are witnessed sometimes from quinine, antipyrine, turpentine, chloral, cubebs, copaiva, valerian, arsenic, cinchonidia, hyoscyamus, the salicylates, santonine, and the iodide of potassium. In children, intestinal worms are occasionally the source of an attack. Genito-urinary disorders in both sexes may at times provoke an outbreak of urticaria. Other diseases which may be preceded, attended, or be followed by wheals are asthma, malaria (sometimes intermittent in type), rheumatism, purpura, pemphigus, prurigo, and the eruptive fevers. Lithæmia, disorders of the kidneys, pregnancy, dentition, mental emotions, such as anger and fear, are some of the other causes which excite its production. When the susceptibility is pronounced the effect is frequently marked from a seemingly insignificant cause. Thus one strawberry, a bit of fish, or a grain of cinchonidia may be sufficient, when swallowed, to induce an extensive attack of urticaria, which may recur with each indulgence. *Pathologically* the wheals of urticaria are produced by a sudden œdema and exudation in a limited area of the upper layers of the skin, probably due to spasmodic contraction of the capillaries from vaso-motor influence. The resistance of the tissues of the skin to the semi-solid swelling being the greatest at the centre, an anæmic point or white spot appears in contrast with the congested and reddish border. The more acute the eruption in its development, the more marked is the characteristic pink and white color of the wheals. With the return of vaso-motor equilibrium

rapid absorption follows. When the wheal occurs at or about the site of other lesions the pathological changes of urticaria are added to those already existing. Unna holds that the wheal is due to a spastic contraction of the superficial veins.

DIAGNOSIS.—Discriminating urticaria from other eruptions is not difficult; frequently the patient or friends have anticipated the physician in that direction. Occasionally the practitioner is called upon to diagnose an eruption which appears and disappears at night, which he had not been called to see at the time. On inspection in such cases some delicate mottlings of the surface where the wheals have been may often be found, and he may be able to excite an artificial wheal by scratching the skin with the finger nail. In any event the ephemeral character of the eruption in association with the sensations of stinging, itching or burning leave no doubt as to their nature. When the eruption is of longer duration there may be a resemblance to erythema. In *erythema simplex* the patches are larger, have not developed from wheals, and are not elevated above the surface. In *multiple erythema* the lesions are much more persistent, and are unattended with the marked subjective sensations of urticaria. Moreover the former is symmetrical, and in the *nodose* form tender on pressure. Urticaria bullosa might be mistaken for *pemphigus*, but the presence of one or more urticarial wheals and its brief duration serve to distinguish it. Urticaria of the face is differentiated from *erysipelas* of the face by the more diffuse swelling and redness in the latter disease, its longer duration and accompanying constitutional symptoms. An immediate eruption from the *sting* of an insect can usually be distinguished by the minute puncture in the centre of the lesion. It is to be borne in mind, however, that a more or less general urticaria may sometimes follow from a single insect wound.

PROGNOSIS.—This is favorable for most cases who will carry out preventive and curative methods of treatment.

TREATMENT.—Causal measures of treatment are of first importance. In idiopathic urticaria the removal of the cause and perhaps a single dose of an indicated remedy are alone sufficient to effect a rapid cure. The cause therefore should be sought for, if not apparent, among the classes which have been enumerated, and removed. In symptomatic urticaria also removal of the cause is the first step. Here, however, it may not be immediately possible to banish the etiological factor. If that be a general or localized disease, continuous or repeated treatment may be required to effect a complete cure. Such is frequently the case in chronic or recurring urticaria. Disorders of the kidneys, uterus, of the nervous system, respiratory tract, the alimentary canal, limited conditions due to pregnancy, dentition, or the menopause; general states like malaria, gout or rheumatism may furnish the indications for treatment. The possible etiological relation of drugs employed internally and locally are to be borne in mind. If acute urticaria is due to irritating contents of the stomach, soon after eating, an emetic, such as twenty drops of ipecac, may be given to unload the mechanically offended stomach. If some time after eating, and the irritation is in the intestines, an effective cathartic suited to age and patient (castor oil or

a saline water) may be employed to remove the causal factor. If due to any one or more articles of food, however small in quantity, correction of the diet is of importance. The indicated *internal remedy* should be given in all cases. It not only hastens the immediate subsidence of the attack, but it tends to prevent recurrence, and as a means of relief from the painful sensations it is usually far more effective than any local treatment. Hence, local measures aside from the employment of means to remove a cause are uncalled for in urticaria, unless we except the alkaline baths containing sodium bicarbonate, sodium biborate, potassium bicarbonate or sodium hyposulphite. Starch, gelatin or bran may be added to these baths or used alone. Experience alone can say which of these substances will prove the most satisfactory in any single case. The following drugs have been found effective in about the order named: *Apis*, *Arsenicum*, *Rhus tox.*, *Antipyrine*, *Ledum*, *Nat. mur.*, *Copaiva*, and *Urtica urens*. See also *Acon.*, *Ant. crud.*, *Bovista*, *Bry.*, *Calad.*, *Cal. carb.*, *Chinin. sulph.*, *Chloral*, *Coca*, *Coc. ind.*, *Colch.*, *Coni.*, *Dulc.*, *Hepar*, *Hyper.*, *Kreos.*, *Lach.*, *Nat. phos.*, *Opium*, *Rumex*, *Sul.*, and *Terebinth*.

URTICARIA PIGMENTOSA

(*Xanthelasmaidea*.)

This disease differs so much from ordinary urticaria as to necessitate separate discussion. It is a rare affection, but likely to be seen in any large clinical experience. Beginning in childhood, usually within the first few months, it may have the same appearance at first as common urticaria; but instead of the individual wheals soon disappearing, they tend to persist on one or more regions, sometimes in small groups. If some lesions partially subside, a fresh exudation may re-form on the same sites, each time adding to the hyperplasia. Instead of the pink and white color of ordinary wheals, or if pinkish at first, they soon take on a yellowish hue which deepens in time to a yellowish-brown. At this stage the lesions appear like firm pea- to bean-sized papules, which may remain unchanged for a long time, and if new lesions continue to form, the variations in color from the reddish tint of the more recent to the brownish hue of the older lesions may be seen in some cases. Occasionally the papules coalesce to form moderate sized patches which at a certain stage may resemble xanthoma. During the development of the disease, if the lesions are irritated, they swell up and take on the appearance of wheals again. Itching may precede or attend the formation of the wheals; when it is severe some temporary wheals are apt to appear and factitious urticaria is not unusual. Bullæ sometimes form on the older nodules, and ecthymatous lesions may result from scratching. These secondary eruptions are not liable to arise in the non-pruritic cases. After a variable time, usually some years, fresh lesions cease to occur, the older ones begin to absorb, and generally before puberty the swelling and pigmentation have disappeared. Exceptionally the elevations are temporary, and pigmentation is only persistent. One case has been reported followed by atrophic scarring, and a few with atrophy of pigment.

ETIOLOGY AND PATHOLOGY.—Nearly all cases begin in infancy showing a certain hereditary tendency or congenital predisposition. Of the eighty-three cases reported by Blumer, in seventy-one per cent. the condition began within the first year. It may appear later and Elliot has reported a case which began at twenty-seven, had existed five years at the date of report, and the patient was subject to factitious urticaria. The *pathology* differs from ordinary urticaria in that the papillary layer of the corium is filled with mast cells arranged in columns, which formation is characteristic of the process. In some instances these mast cells may extend through the cutis and into the subcutaneous tissue. There is a large deposit of pigment in the basal layer of the rete.

DIAGNOSIS.—This is easily made on the following points: Origin in infancy, persistent eruption and duration of wheals or large papules, with pigmentation for many years, or until about puberty. With extreme rarity urticaria with pigmentary staining may originate in adult life.

PROGNOSIS AND TREATMENT.—The disease spontaneously disappears at or before puberty. This tendency to resolution can probably be hastened by internal *treatment*. The remarks on physiological methods in the treatment of common urticaria may apply here if needed. One of my cases improved under *berberis* 1x. Among other probably curative internal remedies see *Antipyrine*, *Arsenicum*, *Lach.*, *Nat. mur.* and *Phosphorus*.

ANGIONEUROTIC OEDEMA

(*Acute circumscribed œdema; Acute idiopathic œdema; Acute non-inflammatory œdema; Giant swelling; Quincke's œdema.*)

Many cases of suddenly occurring, circumscribed swelling of the skin have been noted by different observers. Sometimes they have been found associated with manifestations of urticaria, rheumatism, purpura, erythema nodosa, etc. In most cases the affection appears unconnected with other diseases, but is frequently preceded by slight malaise, and sometimes concomitant gastro-intestinal symptoms indicate implication of that tract by the disease or other disturbance. It may also attack the mucous membranes of the mouth or throat, sometimes producing alarming suffocative distress. Commonly the affection occurs in isolated, circumscribed swellings, varying in size from a half dollar to an orange, or larger, in circumference. The surface of the skin over the enlargement may be unchanged in color, or tinged more or less with red; more often it presents a smooth, shining appearance. The swelling does not give rise to much pain or itching as a rule, but may have a feeling of tension, more or less, at the height of development. Usually individual lesions last only a few hours, or at most one or two days, but fresh swellings may develop as others disappear and prolong an attack for some time. Although any part of the body may be the seat of the process, it is commonly located on the face and genitals. All of my own cases have been upon the face; two were confined to the upper lip, which in one case was swollen to the size of a large hen's egg,

rapidly subsiding at the end of five or six hours. In a third case, the cedema involved the right cheek, and was of longer duration. Attacks may recur on the same or other regions without limit, but the general health in the intervals is generally unaffected, and the resolved lesions leave no trace behind.

ETIOLOGY AND PATHOLOGY.—The disease may occur at any age, but is most common in adult life and in men. It seems probable that a predisposition of the nervous system to this affection may be sometimes hereditary. Milroy has noted its occurrence in six generations in one family, and Osler in five successive generations. The exciting causes may be of the same nature as those which provoke attacks of urticaria or erythema multiforme, to which it seems closely related. The *pathology* is not clear, though there is little doubt that the acute temporary derangement in the peripheral circulation resulting in sudden serous effusion is brought about through the vaso-motor nervous system.

DIAGNOSIS.—This form of neurotic cedema is to be distinguished from all forms of secondary cedematous swelling of the skin, hysterical (menstrual) cedema and *giant urticaria*. The latter may be known by the sensations which are felt in the lesions, and their pink and white color; still, in some cases the similarity is very close and fortunately a positive differentiation is not important. *Hysterical cedema* is usually more persistent, as are secondary forms of dropsical swelling; besides evidences of primary disease are usually obtainable in the latter cases.

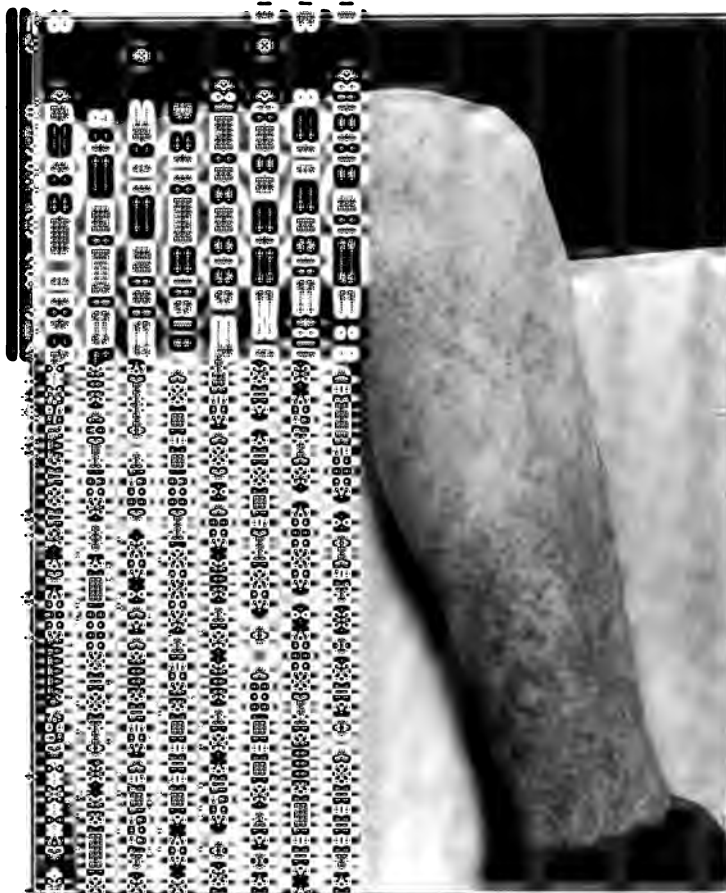
PROGNOSIS.—Probabilities of cure are good. It may not be possible to entirely overcome the tendency to recur in every case, and the possibility of fatal suffocation when the larynx is attacked or the glottis involved is to be kept in mind in forming an opinion.

TREATMENT.—Causal methods of treatment as laid down for urticaria, and the indicated remedies, are the only measures needed in the great majority of cases. The latter after careful selection should be given occasionally for some time after an attack has subsided. The similitum may be found among such drugs as *Agar.*, *Antipy.*, *Apis*, *Helleb. nig.*, and *Urtica urens*. When the location of the acute swelling threatens life, hypodermic injections of *muriate of pilocarpine* in the strength of one-twentieth to one-fourth of a grain may hasten immediate relief by its well known action of exciting free perspiration. Salt and water, applied over the region of the spine, as recommended by Hyde, has yielded satisfactory results.

PURPURA

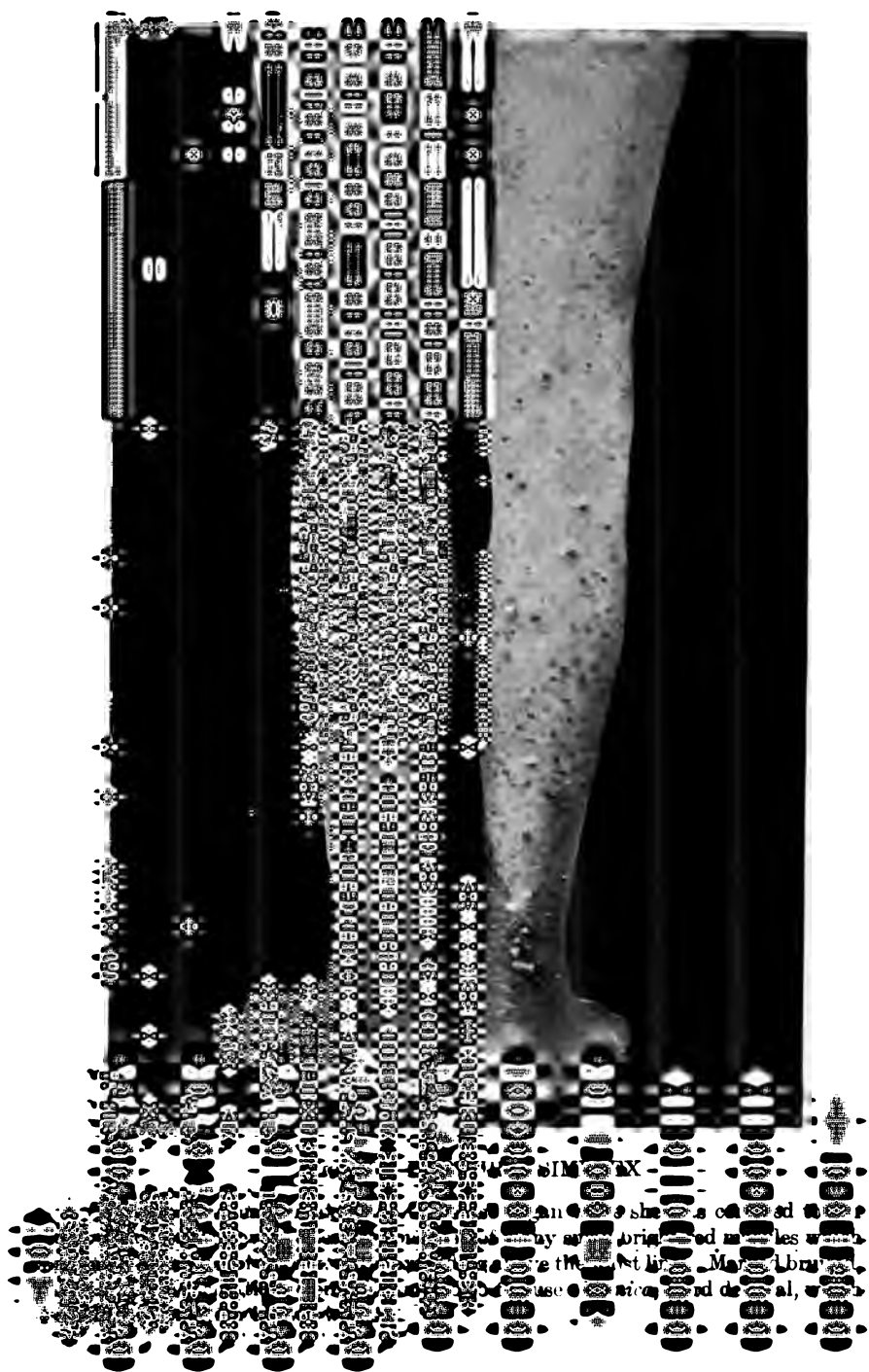
DEFINITION.—An extravasation of blood into the skin not due to traumatism.

Purpura, while now regarded as a symptom rather than a distinct disease, is so often the predominant feature that like pruritis essentialis it claims a separate consideration. Hemorrhages in the skin may take the form of (1)



PURPURA SIMPLEX

single, tall and slender, without a history of
 history of hemorrhagic disorders. Disease began
 spots on the lower leg, not noticed when
 during the day when he felt a sense
 of it was worse. As the climate grew warmer
 the spots became more numerous and
 as the weather grew cooler they disappeared
 almost entirely. The spots were most
 numerous on the lower leg, especially
 on the inner side of the calf, and
 on the ankle. The spots were
 small, round, and slightly raised
 above the surface of the skin. They
 were not itchy and did not
 cause any discomfort.



petechiæ, red or livid spots under the epidermis from the size of a pin point to that of a finger nail, not elevated above the surface nor disappearing on pressure; (2) *vibices*, of similar character occurring in streaks; (3) *ecchymoses*, of larger size, any shape and often attended with some swelling; and rarely (4) *papules* (lichen lividus) when the effusion is at the mouth of a hair follicle. There may occur blood tumors (*hematomata*) and sometimes super-epidermic effusions or *hemorrhagic bullæ*. *Hematidrosis* or blood sweat has been included with the disorders of the sweat glands. When hemorrhage occurs in association with the lesions of other diseases, mention of it may be found in the descriptions of the latter, and when secondary to manifest special or general disease they take their true place as symptoms of minor importance, especially to the dermatologist.

Some of the *characteristics* of purpura lesions (of which the petechial are the most common) are their sudden appearance, unchanging size, except by fresh hemorrhage; their color not disappearing on pressure but by a progressive evolution from the early reddish or purple to the bluish, yellowish-green, and brownish tints common to the ordinary bruise.

Purpura simplex represents the most usual clinical type of cutaneous hemorrhage. Petechial lesions of various sizes, usually round or oval, appear without warning, often without the consciousness of the patient, who may accidentally discover them on dressing or undressing. Sometimes attacks are preceded by moderate constitutional symptoms of malaise, loss of appetite, etc., and occasionally slight itching attends the onset of the disorder; more often it is absent unless some other eruption, as wheals or blebs, coexist with the purpura. Generally the spots are located upon the legs, but they may appear upon any part of the skin or on the visible mucous surfaces. The individual lesions may be isolated, or some may be joined together to form irregular patches. Fresh lesions continue to appear in crops for a shorter or longer time, so that an attack may last from two weeks to a month, rarely longer. During this time all the spots of each crop pass through the gradations of color before mentioned.

Purpura hemorrhagica (*morbus maculosus Werlhoffi*) may also appear without antecedent symptoms or it may follow the simple form, from which it differs chiefly in degree. More often it is preceded by aching in the legs, general lassitude, and sometimes by extreme debility, headache and complete anorexia. Commonly the lesions appear first upon the lower extremities and contiguous parts of the trunk, and may by frequent crops rapidly extend all over the surface of the body. At the same time or later, hemorrhages may occur from any of the mucous tracts, and blood appear in the urine, be expelled from the bowels, stomach, bronchia, throat or nose. Hemorrhages may also take place into the inner structures or cavities of organs, producing symptoms and danger according to their location. On the skin there may be all forms of lesions due to hemorrhage, varying in shape, size and color; the latter depending somewhat on the relative duration of the spots. The duration of an attack, if not interrupted by death from more or less rapid exhaustion, seldom

exceeds two or three weeks, and the bleeding may cease gradually or suddenly. The general health is little affected in the less severe cases, and when uncomplicated by hemorrhages into vital organs the resulting anæmia soon disappears. Thus the majority of cases terminate in recovery. Occasionally febrile symptoms have been observed to precede, attend or follow purpura (*purpura febrilis*), but the real nature of these rare cases is in doubt.

Hemophilia (bleeder's disease) is probably related to purpura hemorrhagica. It is characterized by free and persistent bleeding from slight traumatisms, and is frequently hereditary. *Purpura papulosa* is occasionally seen in the form of small, projecting lesions at the hair follicles, usually on the legs or other dependent parts of the aged, scrofulous or cachectic individual. **Hematomata** or blood tumors, may be superficial or deep seated, and vary in size, consistency and shape. They may arise from the rupture of a single blood-vessel, or from some usual conditions favoring extravasation of the blood. All save one of my own cases have been in infants or young children; most of them were suffering at the time from *infantile scurvy* (Barlow's disease), and in one case an ecchymoma was found, the surface size of a hen's egg, hard and tender on touch. In the scorbutic such swellings may be subperiosteal and painful. **Purpura scorbutica** or scurvy occurs principally among those who are compelled to subsist on a limited or improper diet for some length of time, and are unable to exercise properly. It is common among sailors, prisoners and arctic explorers. Languor and depression, swelling of one or several joints, a febrile show, hemorrhages, petechiæ, ecchymoses and painful ecchymomata may all occur. The condition is curable, though tedious in its convalescence.

Purpura rheumatica, owing to its peculiar symptoms, is frequently described as a separate inflammatory disease under the name of *peliosis rheumatica*, but, as its lesions are essentially hemorrhagic and its etiology probably similar to some other forms of purpura, it seems proper to associate it with the latter. Premonitory *symptoms* of malaise, insomnia, anorexia, with or without slight fever, may be felt; these together with pains in the limbs, especially in the joints of the knees and feet, which are frequently swollen and tender, may continue from one to three days. Then an eruption of slightly raised papules or patches appears, usually most abundant at and about the painful joints, but it is not always limited to these regions, the favorite sites being the knees, calves, ankles, wrists, elbows, and least of all the trunk. With the development of the eruption the pains generally subside. Exceptionally the pains may follow instead of precede the eruption. The lesions vary in size from a minute point to a bean, or larger; of a bright red color at first, they soon become purplish, finally disappear by absorption, as in other purpuras, in ten to fifteen days. Sometimes the lesions are of the same kind as usually seen in purpura simplex, and, rarely, as in purpura hemorrhagica. Recurrence of the attack is apt to follow, and sometimes successive relapses prolong the disease for months. While the systemic temperature sometimes runs up to 102° it is not constant, and febrile disturbance may be absent altogether in the

most severe cases. Neither does the change of temperature appear to be connected with any one or other development in the course of the disorder. Hemorrhages from the kidneys during an attack of peliosis rheumatica have been observed by Kaposi, who also mentions a fatal case due to hemorrhage into the mucous membrane of the larynx. Henoch and others have observed hemorrhages from the gastro-intestinal tract during the course of the disease. Though these complications must be rare they nevertheless help to establish the relation of the disease to purpura. On the other side, the occasional origin of endocardial and valvular lesions of the heart, in the course of peliosis, together with the joint affections, link it more or less closely with rheumatism. The editor has seen two cases who died of endocarditis. In conclusion, it might be said that although there are three sets of symptoms, the cutaneous, the arthritic and the gastro-intestinal, present in most cases, usually only one group is pre-eminently prominent.

Purpura medicamentosa, or hemorrhages of the skin, as an effect of a drug, is usually due to some idiosyncrasy. Among such drugs and poisons may be mentioned arsenic, arnica, alcohol, belladonna, chloral, chloroform, ergot, iodine, phosphorus, and the snake poisons.

ETIOLOGY AND PATHOLOGY.—The spontaneous or true purpuras, while doubtless, in a certain sense, secondary, are apparently due to many indefinite and varied factors. The predisposition to purpura may be *hereditary*, as in cases of hemophilia. It may be *acquired* through influences which change the quality of the blood, interfere with the integrity of the blood-vessels or produce temporary derangement of the vaso-motor nerves.

Blood changes may result from anæmia of a general character, from the lack of some necessary element, as in scurvy; from the development of "some poison—an alkaloid, possibly the result of faulty chylopoetic metabolism" (Osler); from an excess of some normal product, retention of waste material, or from the introduction of some foreign substance into the blood, as in cases of purpura rheumatica; purpura from drugs and poisons, and often probably from the presence of bacteria and their products (Letzerich). Weakness of the walls of the *blood-vessels* may be from a defect of nutrition, as in *purpura neonatorum*; from changed nutrition, as in *purpura senilis*; from degenerations following very acute or long illnesses, constitutional diseases like syphilis, tuberculosis, etc. In the existence of even moderate vascular weakness exciting causes like muscular effort in mechanical pursuits, parturition, coughing, convulsive seizures, loss of support from atmospheric pressure, as at high altitudes, etc., may precipitate hemorrhagic extravasations.

Disturbances in or through the *nervous system*, which presides over peripheral circulation, are probably factors in the causation of the major part of idiopathic purpuras. These are in nature vaso-motor effects of an advanced kind, which so relax the vascular walls as to permit, with increased pressure, filtration of blood into the tissues, or sometimes only transudation of blood coloring matter, and in many, if not most, cases actual rupture of the vessel. Thus temporary mental emotions of grief, shock, excitement, etc., may occa-

sionally result in purpura. Other functional neuroses as hysteria and neuralgia may cause hemorrhages into the skin. Purpuric lesions, sometimes produced by inhalations of chloroform and from snake poisons (Weir Mitchell), are likely of the same nature. Organic disorders of the sympathetic nerves have been shown experimentally and clinically to produce purpura, and Schwimmer is of the opinion that purpura is essentially a tropho-neurosis. Chronic affections of the spinal cord as well as of the spinal ganglia have been attended or followed by purpuric lesions in the skin. Acute purpura (*purpura fulminans* of Henoch), which may be fatal in a few hours or days, can only be explained through some profound effect on the vaso-motor nerves, whether primarily originating from microbic invasion, toxæmia, or some unknown source. Notwithstanding the numerous causes which may predispose to, or operate to produce purpura, there are many cases in which the etiology is obscure. The *pathological* cause, escape of blood or blood coloring matter from the blood-vessels into the skin (chiefly the corium), into the mucous surfaces, and sometimes into the parenchyma of organs, is not uncertain; though whether the method of escape is by rupture of a small vessel, by filtration of blood through the walls of the vessel, or by transudation of blood coloring matter only in a given case, may be somewhat in doubt. Inflammatory processes may be present, and micro-organisms have often been found, but they are not typical of purpura.

DIAGNOSIS.—Purpuric lesions are easily recognized by their sudden appearance, often in successive crops; purplish color, not disappearing on pressure, but finally fading away after passing through gradations of color like an ecchymosis from a bruise. Contusions may be distinguished by their location on exposed parts, not occurring in crops, and often by a history of an accident. *Purpura hemorrhagica* may be differentiated from purpura simplex by the occurrence of hemorrhage from the mucous surfaces, rarely from the skin itself, and usually by more marked prodromal or attendant depression and fever. Purpuric lesions associated with other eruptions of the skin, such as urticaria, erythema nodosum, pemphigus, or occurring in the course of systemic diseases, such as the infectious fevers, septicæmia, etc., may always be recognized by the history and diagnostic symptoms of the primary or real disease. Two allied affections, peliosis rheumatica and scurvy, ought not to present much difficulty. In *peliosis* the joint pains and some swelling, which commonly precede the eruption for two or three days, and the raised or papular character of the purpuric lesions make clear the identity of this form of disease. *Scurvy* will nearly always show swelling of the gums and other signs of the scorbutic state. Its purpuric lesions are larger, and muscular pains and soreness are often pronounced, especially in the infantile form. Moreover its dietetic origin can always be ascertained. Some *insect* bites may become petechial in character, but they can be distinguished from purpura by the early hyperæmic border, central point of puncture and by a discovery of the cause. The possible influence of drugs may be eliminated by inquiry as to their use.

PROGNOSIS.—This is good for cases of purpura simplex, but it is not possible to determine at an early stage that a mild attack will not become hemorrhagic. Even in most cases of the latter recovery ensues. The dangers from excessive loss of blood or from hemorrhage into the brain or other vital organs is to be kept in mind. Purpura in pregnancy, the new born and the feeble, is of graver significance. Predictions as to duration can only be made in a general way. Relapses are not uncommon.

TREATMENT.—Causal methods should be instituted when the underlying factors can be learned and remedied. This may be in the direction of improved nutrition by diet, fresh air, sunlight and other physiological means. In scorbutic states correction of diet is the chief treatment. Rest in the recumbent position should be insisted upon except in the most trivial cases, and in severe forms rest in bed should be continued for a time after hemorrhages have ceased. Local applications of ice and the use of hemostatics is advisable when a hemorrhage is present. The skin can be supported if necessary by bandaging the more dependent parts where gravity helps to weaken the blood-vessels. The indicated drug remedy is very important, and is easily selected, as a rule. See *Arn.*, *Ars.*, *Berb.*, *Bry.*, *Carbo veg.*, *China*, *Chlor.*, *Coca*, *Copaiva*, *Crotal.*, *Kali iod.*, *Lach.*, *Nat. mur.*, *Phos.*, *Rhus tox.*, *Secale*, *Sulph. acid*, *Terebinth.*, and *Vipera*.

ROSACEA

(*Acne rosacea*; *Acne erythematos*; *Gutta rosacea*, etc.)

DEFINITION.—Rosacea is a chronic congestion of the skin of the face, leading to permanent redness, capillary dilatation, secondary acne, and sometimes to hypertrophic thickening of a portion of the affected parts.

SYMPTOMS.—Rosacea is a disease of adult life, and begins as a temporary congestion or redness of the "flush area" of the face, which recurs at varying intervals. After a time the intervals become shorter or only remissions of the redness occur until the middle third of the face or beyond is the seat of hyperæmia, varying in color from a bright red to a purplish hue. There may be sensations of heat in the affected skin at times, and occasionally it is noticeable to touch, but more often the surface is cool. The congestion instead of remaining active as at first becomes passive, and when the color is made to disappear by pressure it slowly returns. Frequently the surface of the skin becomes shiny and tense, especially the nose, which is often the centre of the most marked congestion. Seborrhœal disturbances may make the skin oily or cover it in spots with fatty scales, which sometimes plug the dilated orifices of the oil glands, and in some cases a condition of seborrhœic dermatitis is engrafted on or becomes a part of the rosacea. In this stage also folliculitis or perifolliculitis is apt to ensue and isolated acne lesions appear, in no way differing from those of acne simplex except in the absence of comedones. Larger lesions, as in acne indurata, may mingle with the smaller papules and pustules, though they may be absent altogether or only appear in a later stage; and occasionally rosacea

pursues its course uncomplicated with acne. The disease may exist a long time, for months or years, without further development, perhaps remitting or nearly subsiding under changed conditions of living or of climate, but sooner or later, unless relieved, it passes into the second stage.

In the *second* stage dilated blood-vessels become visible on the surface, either as fine lines, often numerous and widely distributed, or as larger anastomosing vessels, sometimes tortuous and slightly varicose. These are usually most marked upon the nose, but may form in a less degree upon the cheeks, often giving to the skin a bluish or violaceous tint. During this stage the seborrhœal and acnoid feature may be more marked, or occasionally the surface may be dry, uneven and somewhat scaly. Untreated this type of the disease may continue indefinitely, and the third or hypertrophic stage, except in a very moderate degree, may be seldom seen.

When the *third* stage does develop it consists of a connective tissue growth about the vessels that goes on to form tubercle-like, non-inflammatory enlargements at the end and sides of the nose, expanding it longitudinally and laterally, *rosacea hypertrophica*. In extreme cases the process may continue until the nose is enormously enlarged (*rhinophyma*), overhangs the mouth and chin, and is more or less covered with deep red nodules, with here and there dilated or varicose blood-vessels. Most cases of hypertrophic rosacea occur in alcoholics whose occupations expose them frequently to the extremes of weather.

ETIOLOGY AND PATHOLOGY.—Rosacea begins most often between the thirtieth and fortieth years of life, but it originates not infrequently before and after that period. One of my own cases began in the eighteenth year, and Bulkley mentions a case at eighty-four. Women up to the age of forty are more subject to the disease than men, as four or five to one. A weak circulation which determines a sluggish blood current in the vessels of the skin, lithæmia, the gouty habit, sedentary living, predispose in a measure to rosacea. The more direct factors are reflex from irritations in the alimentary organs or tracts, such as the various forms of dyspepsia, constipation, etc. Catarrhs and other affections of the upper respiratory tract are not uncommon causes in the author's experience. Functional or organic affections of the uterus and its appendages may operate reflexly on the circulation of blood in the face. Once I have seen rosacea develop coincidently with the growth of uterine fibroids and subside with the reduction in size of the latter. Genito-urinary affections in men may occasionally act as causes. In both sexes a rich or highly seasoned diet, fermented liquors, hot tea and coffee, when habitually taken in excess, are common causes. It is not an unusual thing to hear patients say such and such liquids "go right to my face." Local affections like acne and seborrhœa may cause increased determination of blood to the face, and injudicious use of local applications, such as cosmetics, or even hot water, so common in recent years for all sorts of purposes, may be contributing factors. Several cases in which persistent aggravation has followed repeated applications of hot water have come under the writer's observation; while the temporary aggravations which may follow from exposure to artificial dry heat, to the sun, as well as to the

extremes of cold and winds, are well known. The *pathology* of rosacea, as has been indicated, is primarily a vaso-motor disturbance, which by frequent recurrence impairs the tone of the peripheral blood-vessels of the face, leading to secondary dilatation of the vessels, inflammation, glandular enlargement, and finally in some cases to trophic changes, largely in the direction of connective tissue growth.

DIAGNOSIS.—The characteristic method of development of rosacea beginning with intermittent redness, later becoming more constant, followed often by capillary dilatation and its symmetrical location on the middle third of the face and adjacent parts of the cheeks, makes it quite distinct from other diseases of this region. It might resemble seborrhœic dermatitis, lupus erythematosus, acne, and in extreme development the nodular syphilide.

Seborrhœic dermatitis would not begin with temporary flushing of the face, or later exhibit dilated blood-vessels. It would show more abundant fatty crusts and frequently a lack of symmetry. It should be borne in mind, however, that seborrhœa sometimes complicates rosacea.

Lupus erythematosus commonly extends by peripheral growth, in more sharply defined patches, somewhat raised borders, and over the affected surface there are more or less dry and adherent scales, which often plug the orifices of the sebaceous ducts. Atrophic scarring may be found as a result of the disease, all unlike rosacea.

Acne vulgaris primarily begins as papules mingled with comedones, without marked redness, and may occur upon the upper part of the trunk as well as on the whole face, whereas rosacea begins with redness, chiefly of the middle portion of the face, and papules if present are of secondary development.

The *superficial gummatous syphilide* of the tertiary period, occurring on the nose, might look like advanced rosacea on casual examination, but the history of development, often lack of symmetry, the presence of ulceration under the crusts or other evidences of syphilitic lesions, past or present, would serve to clear away all doubts. If positive signs of rosacea are present in such cases, the two affections may be found to coexist, or some other eruptive lesions, as from drugs, may help to simulate a syphilide.

PROGNOSIS.—Most cases of rosacea of the first and second degrees, and some in the third stage, can be relieved or cured by appropriate treatment.

TREATMENT.—This must be directed to existing causal states wherever found. Often physiological methods will be found adapted to their relief, in regulation of the diet, to relieve dyspepsia, constipation, and improve nutrition. Every article of food and drink which soon after being taken produces a determination of blood to the face should be rigidly excluded from the diet. All aggravating influences, as exposures to extremes of temperature, etc., should be avoided so far as possible. Rosacea is much the most common in women, hence menstrual disturbances, and disorders of the uterus, ovaries, vagina, may demand relief before a resulting rosacea can be cured. Diseases of the nose and throat may perpetuate rosacea if unrelieved. General states like anæmia, lithæmia and gout may require attention. The details of treatment of these

and other related affections need not be specified here. Very often they will afford indications for internal pathogenetic remedies as well as other lines of therapeutics. If judicious physiological (causal) and internal drug treatment can be carried out, the need of *local* treatment is minimized. However, this ideal method is often impossible, and the stimulating lotions recommended for acne vulgaris may be necessary. The *high frequency currents* should be used once or twice a week, for such cases of the first stage and sometimes in the second stage. This latter phase of the disease usually responds to *radiotherapy* more quickly and satisfactorily (see technique under acne vulgaris). The telangiectases are not often influenced by the Röntgen rays, but may respond to *phototherapy* (see remarks in Part I. on phototherapy) and for rosacea of small areas it has been reported as more effective than radiotherapy. In the second stage, *massage* of the face by a skilled operator may be of decided benefit in restoring tone to the weakened vessels and other structures of the skin. It may be employed for from twenty minutes to an hour every two or three days. Large or varicose vessels may need to be punctured, scarified, or destroyed by *electrolysis* to insure their disappearance. For electrolysis the same appliances can be used as in the removal of hairs, the needle being inserted into the vessel before the current is turned on. The same method with the needle introduced into all parts of the dilated sebaceous follicles is said to be effective in reducing the hypertrophy of the third stage. When the nodular growths are excessively large, *amputation* may be expedient, as the only way to certainly result in any material reduction in the size of the nose. Cases requiring surgical operation are of extreme rarity. When papules or pustules become a prominent feature of rosacea, local treatment as indicated under the treatment of acne may be required. For internal remedies see *Agar.*, *Ars.*, *A. Brom.*, *A. iod.*, *Bell.*, *Calad.*, *Cal. phos.*, *Carbo anam.*, *C. veg.*, *Carbol. acid.*, *Caust.*, *Coccu. ind.*, *Colch.*, *Kali brom.*, *Nux vom.*, *Phos. acid.*, *Rhus tox.*, *Sepia*, and *Silica*.

HERPES

The term herpes has gradually become restricted in dermatology to designate a type of acute non-contagious eruption of grouped vesicles, not usually occurring in association with other eruptive diseases. The terms *herpes iris*, *herpes circinatus* and *herpes tonsurans*, while still employed to some extent in text-books, are known, the first as a form of erythema multiforme, the last as a form of ringworm, and the second may refer to either disease. Here the term will include the two forms of simple herpes, designated according to their location as herpes facialis and herpes progenitalis, while herpes zoster and herpes gestationis will be discussed in the same class.

HERPES FACIALIS

(*Herpes labialis; Herpes febrilis; Cold sores; Fever blisters, etc.*)

SYMPTOMS.—This very common form of herpes scarcely needs a full description. It often appears after febrile disturbance from some cause, such as a catarrhal cold, malarial paroxysm, sore throat, etc., but is often due to non-febrile gastric disorders, and may occur without any antecedent symptoms. The usual location is about the mouth or nose, less often on other parts of the face, ears and not infrequently on the mucous surfaces of the mouth, throat or nostrils. After more or less distinct sensations of heat, tension, pricking, etc., at the point of attack, a sensitive swelling appears quite suddenly, which in a short time is transformed into papules, and a few hours later into vesicles. These are pin head to a small pea in size, full of transparent serous fluid, and arranged in one or more irregular groups of a dozen or less, some of which may coalesce and form blebs. Within a few days the vesicles become opaque or yellowish, gradually dry up without rupture and form yellowish-brown crusts, which fall off in the next few days, leaving the skin intact, but remaining slightly reddened or stained for a short time longer. If the crusts are prematurely torn off, an irritated, oozing surface is exposed. On the mucous surfaces herpes is not usually seen in the papulo-vesicular stage, but only after exfoliation of the epithelium has occurred, leaving sharply defined, grayish-white patches known as "canker sores."

ETIOLOGY AND PATHOLOGY.—The more obvious causes have been previously mentioned in the symptomatology. It is not improbable that a sort of neurotic predisposition may form a part of the etiological chain, so that like effects are experienced from different causes. However this may be, it seems more than plausible that irritation of the peripheral nerves is an essential part of the pathology of herpes. This excitation may be reflected from distant organs, arise in the course of a nerve trunk or in the skin itself, but is probably most often reflex in nature, involving the sympathetic ganglia through the fifth nerve. An attempt has been made to show the parasitic origin of herpes, but nothing has been proven. Facial herpes is looked upon by some authorities as a modified zoster, but it is clinically quite distinct.

DIAGNOSIS.—Herpes of the face is only likely to be mistaken for eczema, impetigo or zoster. From *eczema* it is easily distinguished by its larger vesicles, tendency to dry up without rupture or continuous weeping, and its short course. The resemblance to *impetigo* would be only apparent after crusts had formed. In herpes they are less elevated, which, together with the history of development from grouped vesicles, would settle the diagnosis. *Zoster* is preceded or attended with sharp, neuralgic pains, is situated on the lines of nerve distribution (rarely on the face), is nearly always unilateral and of longer duration, and does not tend to recur.

PROGNOSIS.—This is good for immediate recovery. Herpes probably has little significance when occurring in the course of an acute disease. The tendency to recur is often marked.

TREATMENT.—This is almost wholly by internal remedies selected from related gastric or other symptoms (see list of drugs under herpes progenitalis). Protection may be given to the affected skin and resolution hastened if desirable by painting the patches over with collodion, or when crusts have formed, they may be removed by applying sweet oil.

HERPES PROGENITALIS

(*Herpes preputialis.*)

As the name indicates, this form of herpes occurs on the external genital organs of both sexes.

SYMPTOMS.—In men the most common seat of the eruption is on the mucous surface of the prepuce, but it may occur upon the outer part or at any point on the skin of the penis, the glands or even in the meatus. In women it is often situated on the labia, clitoris, mons veneris, occasionally on the perineum, anal and genito-crural regions, and sometimes on the vaginal surfaces and os uteri. On the skin of the genital regions the process differs in no way from facial herpes, except as modified by heat, friction or pressure; but on the mucous surfaces vesiculation is often attended with some swelling. There may be but one pin-head sized vesicle, and seldom more than one group of vesicles, which look like white spots on the mucous surface. These rupture in a few hours, leaving small, raw, grayish, well-defined spots, which, if unirritated by harsh treatment, heal in a few days without loss of substance or induration. If, however, the denuded spots are irritated by repeated coitus, caustics, etc., ulceration may follow, perhaps for weeks, masking entirely the primary affection and often attended with induration of the inguinal glands. Moderate swelling and tenderness of the inguinal glands may occur in susceptible individuals without suppuration. This form of herpes tends to recur in some persons of either sex on slight or ordinary provocation.

ETIOLOGY AND PATHOLOGY.—The most reasonable explanation of the occurrence of genital herpes is, that an acquired susceptibility of the sensory nerves of these parts is such that ordinary local factors excite a reflex action in the neighboring sympathetic ganglia. This predisposition in men appears to often originate from previous venereal disease. Two-thirds of my recorded cases show the history of venereal affections. It is not so easy to name a probable mode of origin in women unless it be from repeated menstruation, which seems rather an immediate than a predisposing cause in chaste women. Herpes is more common in prostitutes, probably from the prevalence of venereal disease among them, as well as the frequency of local irritations. The predisposition existing, an attack in men is not infrequently brought on by sexual intercourse, and in women by menstruation; but hyperæmia of the genital organs from voluptuous emotions, irritations of the bladder or urethra, from conditions of the urine, catarrhal discharges, passing the catheter, appears capable of exciting outbreaks.

DIAGNOSIS AND PROGNOSIS.—If seen early, herpes progenitalis is easily recognized. One or more vesicles on a red base are sufficiently characteristic. When the lesion has become excoriated, it may be very difficult to make a positive diagnosis at once from the initial lesion of syphilis and chancroid. The primary sore of *syphilis* is usually solitary, slow in development, with slight serous discharge, an indurated base, and is attended with engorgement of the inguinal glands. Herpes vesicles are often multiple, sudden in development, without induration, often without glandular swelling, and may sometimes be made to discharge a serous fluid by pressure. *Chancroid* is destructive in tendency, auto-inoculable, and produces inflammation and sometimes suppuration of the glands of the groin, thus differing from herpes. In a case of doubt, a few days' simple treatment will clear up herpes, only modify chancroid, and produce no effect on the course of true chancre. Herpes of the genitals opens wide the gates to possible venereal infection, and should, therefore, be kept in mind in cases of probable exposure, both in relation to diagnosis and *prognosis*. The latter is always good for the immediate recovery from an attack, but is rather uncertain in regard to recurrence.

TREATMENT.—Absolute local cleanliness by gently washing with soap and hot water, followed by dusting the spots with an impalpable powder of boric acid, aristol or calomel, is the only immediate treatment needed in most cases. When the affected part is exposed to friction, a ten per cent. ointment of either boric acid or aristol may be found serviceable. Treatment should be addressed to a correction of the predisposition to herpes as well as to the immediate attack. Prophylactic measures can be enhanced by the local use of tannin and brandy or aromatic wine plus a sexual hygiene aimed at the prevention of genital congestion.

For internal medication see indications for *Ars.*, *Canth.*, *Carbo veg.*, *Cistus*, *Clemat.*, *Cornus circ.*, *Crot. tig.*, *Dulc.*, *Hepar*, *Nat. mur.*, *Sepia*, *Sul.*, *Terebinth.*, *Thuja*, and *Urtica urens*.

HERPES ZOSTER

(*Zoster*; *Zona*; *Ignis sacer*; *Shingles*.)

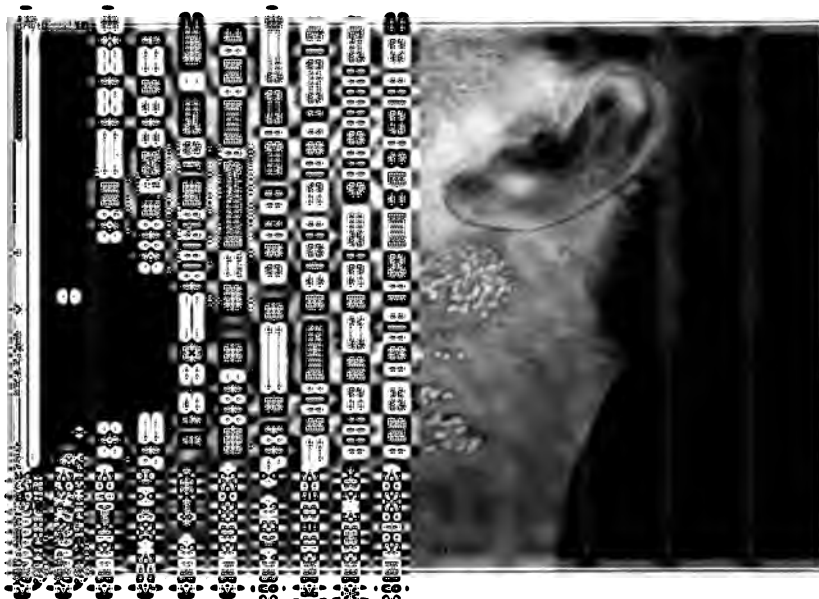
DEFINITION.—An acute vesicular eruption situated on a red base, and distributed along the line of one or more cutaneous nerves.

SYMPTOMS.—Premonitory pains of a variable neuralgic nature nearly always precede the eruption for a few hours or days. Occasionally the pains begin coincidently with the eruption, and rarely may continue or follow its decline. The neuralgic pains may be limited to definite points or more or less diffused about the region to be invaded, and often points sensitive to pressure may be found somewhere in the course of the nerves. When the attack is to occur on the side of the trunk, as commonly, the point of greatest tenderness is usually near the exit of the posterior spinal nerve adjacent to the vertebra. The eruption begins with some redness of the skin followed in a short time by

groups of acuminate, closely placed papules, which within a few hours are converted into pin-head to pea-sized vesicles, fully distended with clear serum. These may remain distinct and clearly outlined by the erythematous skin about them, or some may coalesce forming bullæ. Prickling, tingling or smarting sensations generally attend the development into vesicles. After remaining clear for two to four days without tendency to rupture, the vesicles slowly become opaque, dry up into yellowish-brown crusts, and finally fall off, leaving a slight redness to slowly disappear. Rarely there may be left some persistent pigmentation at the site of the lesions. Such is the course of one group of the eruption, with an average duration of about ten days; but as the eruption appears in successive crops, a few hours or days apart, and all the patches pass through the same course, the *duration* of an attack may be prolonged to from three to six weeks, and rarely longer. The groups of eruption vary widely in size from half an inch to four or five inches in diameter. They are irregular in shape, but tend as a whole to form a semi-band like distribution on one side of the trunk, which usually beginning nearest the spine extends successively more or less forward toward the median line, and occasionally slightly beyond. Sometimes the distribution is more uniform over a small or larger extent of surface, or a narrower irregular linear arrangement of lesions is seen. In all regions the distribution is almost invariably unilateral, but a few cases of bilateral zoster have been reported. One of *double* cervical zoster was recently under my observation for four weeks, the distribution being on a level and about equal on both sides. The onset and duration were otherwise typical.

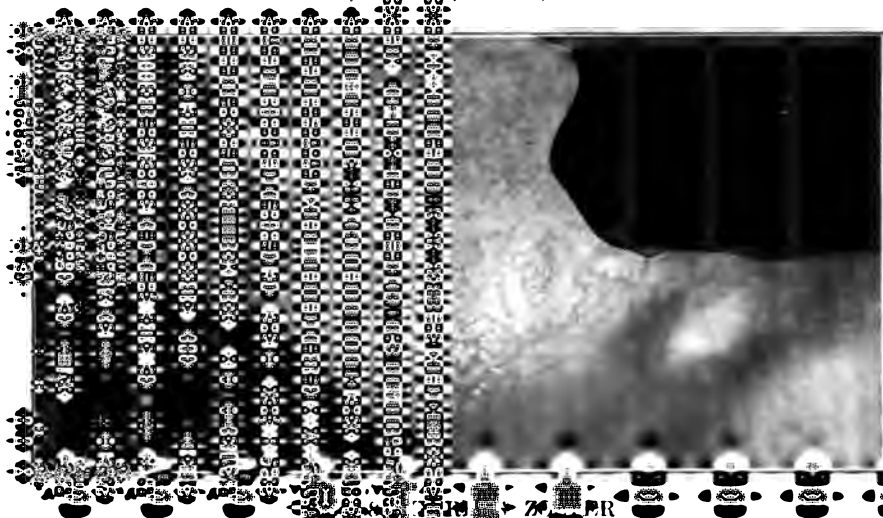
Most cases of zoster follow a rather uniform course as already described, but occasionally anomalous cases are seen. Perhaps the most common departure is by slight hemorrhage occurring in some of the vesicles which does not usually affect the course of the attack. Rarely all the lesions become hemorrhagic, rupture and lead to ulceration; exceptionally they become gangrenous at the base, *zoster hemorrhagicus* and *gangrenosus* respectively. These variations in the disease result in destruction of tissues with consequent scarring and rarely keloidal growths. The cases of this kind seen by the author were nearly all hospital cases, and more or less anæmic or cachectic. Sometimes swelling of the subcutaneous glands in the neighborhood of zoster has been observed. Occasionally in old people zoster may assume a chronic tendency. Such an instance of supra-orbital zoster was seen by the writer recently, in which a few vesicles appeared in crops every three or four days for three months, always preceded by the characteristic neuralgic pain. A few of the lesions went on to ulceration. On the other hand, the eruption of zoster may be arrested in the papular stage and resolution occur without vesiculation, *abortive zoster*.

The eruption of zoster may be *located* along the distribution of any cutaneous nerve, though it shows a marked preference for the nerves of the trunk, especially on the right side. More than half of all cases appear upon the trunk. Next in order of frequency are the cervical, the region supplied by the fifth nerve, abdomino-crural region, leg, arm, etc. As branches of several nerves may communicate with the same ganglion, if the latter is affected, the lesion



HERPES ZOSTER

(side of neck)



HERPES ZOSTER

(side of neck)

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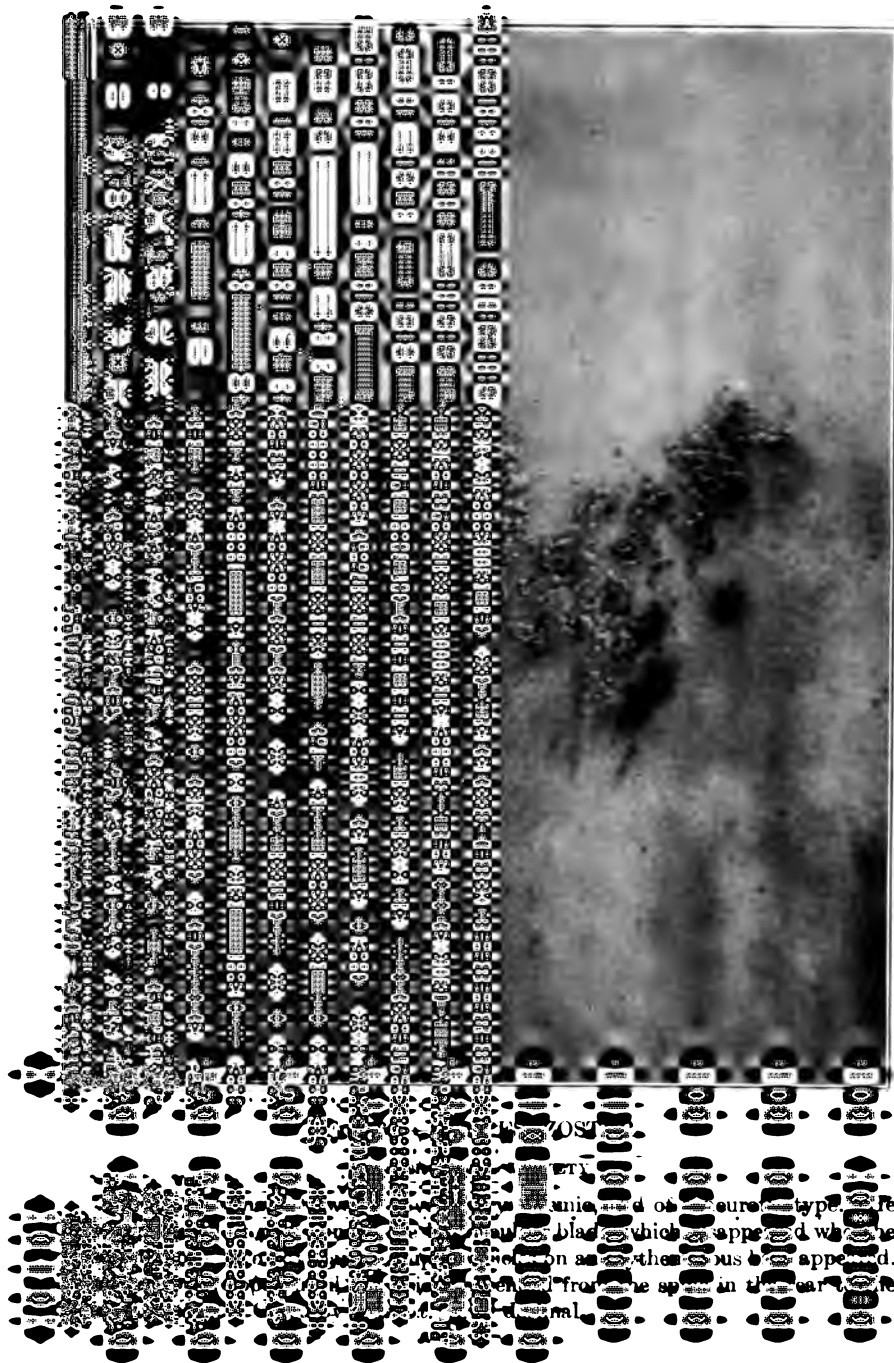
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may appear on any of the distal lines of the several nerve fibres. The nerves of two or more adjacent regions may be simultaneously involved and rarely separated districts may be attacked at the same time. Single or combined names of anatomical regions have been employed to designate the localization of zoster, such as *zoster frontalis*, *cervicalis*, *brachialis*, *pectoralis* (intercostalis), *cruralis*, *genitalis*, *cervico-bronchialis*, *lumbo-inguinalis*, *sacro-genitalis*, etc., etc. When the fifth nerve is affected there may be considerable variation in the clinical expression. Most often the frontal branch is chiefly involved, and the eruption in the supra-orbital region may extend upon the scalp. If the ophthalmic division of the nerve is irritated, *zoster ophthalmicus*, there is corresponding involvement of the eye, such as conjunctivitis, distension of the blood-vessels; sometimes papules and vesicles form on the cornea followed by ulceration, or iritis may occur, and in some of these ways result in permanent defect of the eye. These cases are always attended with pain and danger, even when the eye itself is not seriously affected. In some cases the swelling of the skin and subcutaneous tissue of the eyelid and brow may completely close the eye, simulating somewhat the objective appearance of erysipelas. If the second branch of the fifth nerve is affected, herpetic lesions may appear on the mucous membrane of the mouth and throat of the same side, and subsequent falling out of some of the teeth in the affected region has been observed, as well as necrosis of the jaw in one instance. The disease rarely appears below the knee.

Zoster, as a rule, occurs but once in a lifetime, yet there have been a few notable exceptions recorded, the principal one by Kaposi, who mentions nine attacks of zoster in the same patient under his observation and two later abortive attacks. He places the case in the category of *zoster hystericus* or atypical zoster. I have attended a gentleman of a rather neurotic temperament through two attacks of zoster, who gives a clear history of at least six marked recurrences. One of these occurred at fourteen while in Europe, and was under the observation of Hebra. Ordinarily zoster is a benign disease ending in complete restoration of the structure and functions of the skin, except the scarring after severe hemorrhagic zoster already named. But occasionally abnormal *sequelæ* remain in the form of sensor, motor or trophic disturbances singly or combined. There may be in the region affected by zoster diminished sensibility only, or some of the various forms of morbid *sensation*; even complete anæsthesia of individual forms of sensation may exist with hyperæsthesia or paræsthesia of a different form (anæsthesia dolorosa). Neuralgia is not infrequent, especially after facial zoster, and may be far more health disturbing than the original disease. Neuritis, fortunately, does not often occur. From the records of about one hundred cases the editor has noted only one instance of this disease following zoster. The function of *motor* nerves in or near the region of zoster may be interfered with and show in paralysis or muscular atrophy. Most cases were probably temporary in duration, but Besnier mentions one case of permanent facial paralysis. Among *trophic* effects, loss of teeth before named, falling out of the hair, interference in the nutrition of the nails, and at least two cases of unilateral hyperidrosis have been attributed to zoster.

ETIOLOGY AND PATHOLOGY.—More than half of all cases of zoster occur before the twentieth year of life. It is rare in infants, though a case has been recorded by Loimer occurring in a child only four days old. The disease is rather more common in adults after middle life than before. It occurs more often in spring and autumn than at other seasons, but this may be due to the more frequent variations in temperature than at other times of the year, as cold or chill has been often noted as an exciting cause; among other direct causes are traumatisms—accidents, extraction of teeth, vaccination, surgical operations, etc.—neoplasms, abscess, pleurisy, and other sources of peripheral nerve irritation. The operation of some, if not all of these factors, implies an abnormal susceptibility or irritability in the nerves of the regions about to be attacked, for generally acting causes of different kinds seem to produce like results. Thus inhalations of coal gas and its diffusion in the blood have brought on attacks of the disease. Zoster following the administration of arsenic has been noted too frequently to be explained as a mere coincidence, especially in view of the well-known affinity of this drug for the peripheral nerve terminations. The causal influence of functional nervous perversion like hysteria, or mental depression and excitement, can only be explained on the same basis. Herpes zoster is not uncommon in tuberculous subjects and in those suffering from the constitutional effects of cancer or other cachexia. It has occurred epidemically, alone or in association with some epidemic disease like influenza. Owing to this fact and to very clear evidences of direct contagion in a few cases, and to the immunity from a second attack enjoyed by most patients, the belief is steadily growing that zoster may be, at least in some cases, an infectious disease. It sometimes appears due to reflex effects from irritation of internal organs, and in not a few cases no cause is apparent. In the *pathology* of zoster, micro-organisms are believed by some to be the prime cause, either through invasion into the tissues of the part affected, or by special microbic infection resulting in toxic effects on the nerve centres. These suppositions are, as yet, unsupported by scientific proof and do not harmonize with the clinical history of many cases of the disease. The real pathological cause of zoster is undoubtedly disease of the nerve which is distributed to the affected skin, either at its origin in the cord or in the ganglion, or in its course outward to the surface. The kind of nerve change may vary also in different cases, though neuritis of some part of the nerve tract is probably the most common. This takes the form of interstitial neuritis of the ganglion in most cases, as first demonstrated by Bärensprung in 1862; but it has been shown since that the neuritis may affect any intermediate part of the nerve or its cutaneous divisions, leaving the ganglion intact. If the neuritis involve the motor branches, muscular paralysis may accompany or follow the eruption. When peripheral neuritis and consecutive herpes arise from external injuries of various kinds, the deeper nerve structures are not usually affected. Least of all, inflammation of the posterior columns of the cord and cerebral disease have been observed in association with zoster. Pressure from hemorrhage into the ganglion, nerves or sheaths; from tumors, abscess, blood clots, etc., adjacent to nerve trunks or

branches, are some of the non-inflammatory causes which have produced nerve irritation, with resulting inflammatory effects of the skin. Whatever the pathological cause may be, the effect on the nerve distribution is usually of a temporary nature, and hence is not followed by a recurrence of the cutaneous manifestations. When the effect is extreme, hemorrhage, necrosis, etc., may take place in the lesions; and when more persistent, some of the sequelæ may follow, such as sensory or motor disturbances occasionally seen. Considering the fact that all spinal nerves are complex and contain sensory, motor, vaso-motor and possibly independent trophic fibres, it is remarkable that zoster so often pursues a typical course. At the same time this may account for the differences of opinion as to whether it is a sensory, vaso-motor or trophic neuritis. The anatomical changes in the skin are essentially the same as occur in other vesicular diseases, the lesions originating in the deeper portions of the rete. The one peculiarity of the zoster vesicle is found in its walls, which contain epithelial cells transformed into round or ovoid bodies. These bodies are larger than normal cells and contain from two to a dozen round bodies.

DIAGNOSIS.—Little trouble will be generally found in recognizing herpes zoster, if its characteristics are remembered. The associated neuralgic pain, successive eruption of crops of vesicles on an erythematous base, distributed along the course of cutaneous nerves, and almost always on one side only, are peculiarities not exhibited by any other disease. The comparative differences from *simple herpes* have been stated in the diagnosis of herpes facialis. The vesicles of *eczema* are smaller, soon rupture, and tend to produce a continuous discharge, and are attended with greater pruritus.

PROGNOSIS.—Recovery is to be expected in nearly every case of herpes zoster. Successive crops of vesicles may prolong an attack beyond the average duration of two or three weeks. In ophthalmic zoster the possibility of resulting damage to the eye and scarring in this and the hemorrhagic form should be borne in mind.

TREATMENT.—Most cases require no local attention aside from simple protection with a rather thick layer of sterilized cotton or gauze held in place by a bandage. If there is much heat, stinging or burning, four or five thicknesses of gauze may be wet with *alcohol* and laid over the patches with the protecting cotton-wool outside. When severe pain continues with the eruption, tincture of *hypericum* one part to two parts each of alcohol and water may be employed as directed, or alcohol alone. When neuralgic or neuritic pains persist after the eruption has subsided, the *high frequency currents* can be used by means of the vacuum electrodes. Painting the lesions with simple *collodion* sometimes gives efficient protection and probably hastens resolution. The author has rarely found anodynes locally or internally necessary in the treatment of zoster. Protection of the affected surface and the indicated remedy have almost invariably afforded reasonable relief and hastened cure. For internal remedies see indications for *Acon.*, *Ars.*, *Aster. rub.*, *Bell.*, *Canth.*, *Cistus cir.*, *Colch.*, *Croton tig.*, *Dulc.*, *Graph.*, *Hyper.*, *Iris ver.*, *Kali brom.*, *Kalmia*, *Lach.*, *Mez.*, *Paris quad.*, *Ranun. bulb.*, *Rhus tox.*, *Sil.*, *Spigelia*.

DERMATITIS HERPETIFORMIS

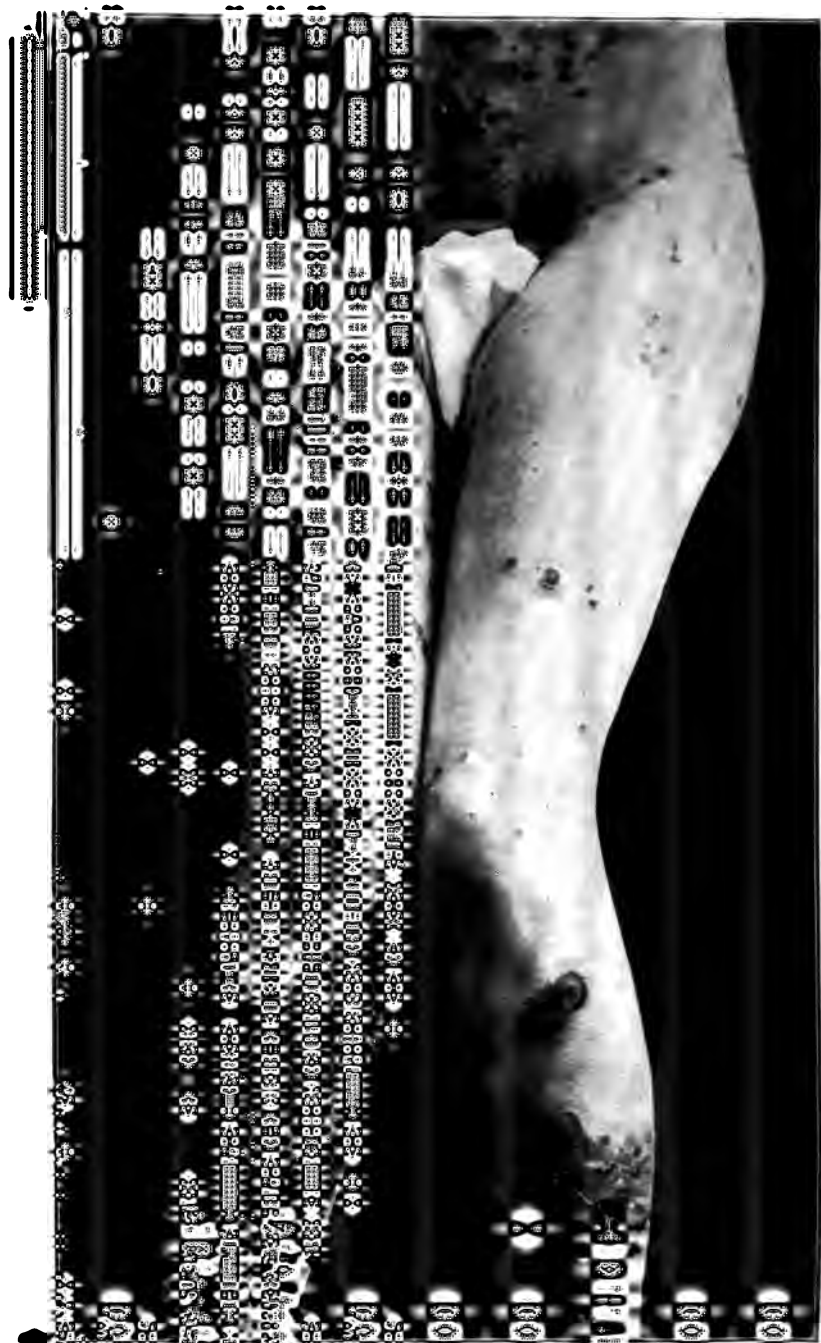
(*Hydroa herpetiforme*; *Herpes gestationis*; *Pemphigus pruriginosus*; *Pemphigus circinatus bullosus*; *Hydroa bullosus*, etc.)

The partial list of synonyms here given indicates the varied clinical forms of a cutaneous disease which may be said to be all variety rather than one distinct type with variations therefrom. The unification of the different forms under the above caption is due to Duhring, whose investigations and conclusions have been generally accepted by dermatologists. Kaposi, however, does not view it as an independent disease, but rather as related to, or as variations of pemphigus, except a form now described as impetigo herpetiformis.

DEFINITION.—An infrequent cutaneous disease, characterized by a variable and often mixed eruption of papules, vesicles, bullæ and pustules, with associated erythema; commonly arranged in groups, chronic in course and usually attended with marked sensations of itching, burning or tension.

SYMPTOMS.—Moderate constitutional disturbances, such as anorexia, constipation, chilliness, feverishness, etc., may precede the onset of the eruption or its aggravations during the course of the disease. These may continue for some days after the eruption appears. In not a few cases the systemic disturbance is very slight or absent, while in severe cases it may be well marked and persistent. More or less pruritus may be felt in the skin for a few hours or days before the appearance of the eruption, or the latter may occur suddenly without local warning of its approach. It is bilaterally and often symmetrically located, most often on the flexor surfaces of the wrists, forearms, the abdomen, buttocks, and outer part of the thighs, but it may be generalized over the whole surface or limited without rule to any region. The lesions tend to occur in groups of two or more, and singly or combined from unusual and varied shapes.

The vesicular form is often the earliest as well as the most common and characteristic type of the disease. The vesicles vary in size from a pin head to a pea, and when situated in clusters on an erythematous base closely resemble groups of herpes simplex or zoster. They show their further herpetic nature by not rupturing spontaneously. The earlier vesicles after a time dry up and form scabs, while the later lesions are more apt to coalesce and form bullæ, which in time shrink up and if undisturbed leave peculiar puckered brownish crusts. In many cases the vesicles are attended with redness, and sometimes when small and translucent may remain undiscovered. They are more often yellowish or pearly in color, and occasionally the contents of some become opaque or sero-purulent. Many of the lesions may vary in outline or form; they may be oblong, angular, stellate, semi-spherical or rarely circular. These and the tendency to occur in groups of two, three or more, or in bead-like lines form incomplete, irregular or multiple circles situated on normal, reddened or inflamed skin, and sometimes an intermingling of blebs, papules and pustules in various stages of evolution present an unmistakable picture of this disease. The eruption may continue to appear in frequent crops, or at longer intervals



HEALTHY

tion
by
sixth month or the previous
months, but was improved in health with her two
months ago about four months after conception.
There was an unbearable sensation of tension
in the sides and but a very slight pain in the
lower back. They had up to this time had
no other children and were very much
satisfied with the results of the operation.
The operation was performed by Dr. W. A. W.

for weeks or months, until after a variable period remission or intermission interrupts the course of the disease, for a longer or shorter time. When the outbreaks are frequent and the itching intense, the skin is likely to become infiltrated and excoriations may be added to or change other lesions. With the disappearance of the lesions, slight pigmentation may remain for a time to mark their former sites.

The **bullous** form may develop from vesicles, erythematous patches, or arise from the sound skin, and exhibit lesions varying in size from a pea to a hen's egg, fully or partially distended with clear milky or sero-purulent fluid. Within a few days they are likely to be ruptured by scratching or otherwise, and then dry into yellowish-brown crusts which after a time fall off, leaving the skin hyperæmic or stained. Vesicles and pustules as well as erythema may mingle more or less with the bullous lesions, and sometimes the type gradually or suddenly changes to the mixed or other form of eruption.

An **erythemato-papular** form may be primary or secondary to other types of the eruption. Erythematous lesions quite commonly predominate in the eruption and occur in association with other types, but the papular very rarely exist alone or even characterize the efflorescence except in moderate association with erythematous or vesicular lesions. The onset and course of the erythemato-papular eruption is often acute or subacute, and appears in small or larger pinkish patches which later become yellowish-red. These may be sharply defined or fade into the adjacent skin, or mingle with maculo-papules and wheal-like elevations, and sometimes œdematous swellings. The eruption occurs in crops, tends to persist, and is frequently widely distributed. On a single region the resemblance to erythema multiforme may be exceedingly close. Sometimes isolated groups of distinct, large or small papules are seen, though seldom many or freely distributed. They may be flat, round or irregular in shape, slow in their course, often excoriated from efforts to relieve the intense itching, and, finally, when they fade away leave behind some pigmentation. Vesicles may develop on some of the lesions of the erythemato-papular form, or it may preserve its type throughout an attack and after a longer or shorter quiescence recur again and again in the same or other forms of the disease.

The **pustular** form of dermatitis herpetiformis is so rare and so nearly approaches in clinical type impetigo herpetiformis that its identity as a distinct variety is in doubt. The most that can be said is that in some cases there is a predominance of pustular lesions, arising primarily as such, or developing from pre-existing vesicles or papulo-vesicles, and nearly always intermingled with these and the lesions of other forms. The pustules vary in size, mature in from five to ten days, but new lesions arise singly or in crops, and prolong the attack for an indefinite number of weeks. Aside from these features and a less tendency to grouping and diversity of arrangement of lesions than in the vesicular form, the course otherwise is much the same as in the latter variety, always, however, indicating a graver general condition, and usually attended with greater systemic disturbance. The **mixed** form is frequently a transitional variation from one of the foregoing forms to another, or it may be a mingling

more or less of the lesions of all forms, but a distinct mixed type is seldom persistent.

Dermatitis herpetiformis occurring during or soon after pregnancy has been sometimes described separately as *herpes gestationis*. Its only other distinctions appear to be that it disappears at the end of the parturient period as a rule, but has a great tendency to recur at each successive pregnancy with increasing severity, and finally to assume the course of other forms of dermatitis herpetiformis.

ETIOLOGY AND PATHOLOGY.—The disease affects both sexes and may occur at any age, but is most often seen in the first half of adult life. Many attacks have followed antecedent nervous prostration, mental worry, shock, emotional disturbances, and from exposures, all suggesting a neurotic origin. Any cause which sufficiently disturbs the nutritive processes in the skin may give rise to it without much or any systemic disturbance. In other cases it seems to originate from some general lack or derangement of nutrition. Winfield has reported a number of cases associated with glycosuria, and a few cases ending fatally have been recorded as due to septicæmia.

The *pathology* is intimately related to that of erythema multiforme, urticaria, herpes zoster and pemphigus, and presents an acute inflammatory condition of the corium, especially of the papillary layer. There is the usual dilatation of vessels, cedema and infiltration of lymph spaces. Vesicles form rapidly between the basal layer of the rete and papillary body. These vesicles may coalesce to form larger ones and contain a network of fibrin with red-blood, epithelial, mononuclear and eosinophile cells. These last, Lerrede believes, are peculiar to dermatitis herpetiformis and similar diseases. The lesions of dermatitis herpetiformis are always superficial and never ulcerate, and hence do not leave cicatrices (unless caused by secondary infection). Pigmentation sometimes follows, but though it may be persistent, it is probably never permanent.

DIAGNOSIS.—An accurate history of attacks and their course will be of great service in differentiating dermatitis herpetiformis from other affections which exhibit similar eruptions. Thus the more general differences from eczema, pemphigus, herpes zoster, erythema multiforme and urticaria will become manifest. In *eczema* the vesicles are smaller, more regular in shape, less grouped, soon rupture, and give rise to continuous discharge and crusting. The papules of *eczema* are also smaller, regular in size and shape, not tending to appear in groups, as in the case of dermatitis herpetiformis. *Pemphigus* bullæ usually arise from the sound skin, are commonly larger and more regular in outline than the bullous lesion of dermatitis herpetiformis, do not show a tendency to become grouped or commingle with other lesions and do not cause itching, as a rule. *Herpes zoster* would scarcely be mistaken for dermatitis herpetiformis. Its limited distribution, neuralgic sensations, definite course and unilateral location clearly distinguish it from the latter. *Erythema multiforme* and the erythemato-papular form of dermatitis herpetiformis may be very like in their objective appearance, but the former is usually limited to the

back of the hands, arms and face, is not attended with intense itching, and runs an acute course in from ten to twenty days. If vesicles or bullæ appear they are always consecutive to erythema, which is not always the case with the vesicular lesions of herpetic dermatitis. *Urticaria* will seldom be confounded with dermatitis herpetiformis. Its usual onset with a sudden eruption of ephemeral wheals with the mixed sensations of stinging and itching, without tendency to become grouped or arranged in broken or more complete circles, and the absence of multiform lesions are distinctive.

PROGNOSIS.—The capricious nature and course of this affection render it impossible to predict with any certainty the future of any case. It is only in the most severe cases that the general health is affected, so the prognosis is usually good so far as danger to life is estimated. Most cases may be expected to recover ultimately under appropriate treatment, but the liability of all ordinary forms of the disease to be capriciously chronic in one or variable types is to be kept in mind in estimating its course. Of the nine cases lately treated by the authors, three have died, one of these being seventy years of age and the other two having had the disease for years previously.

TREATMENT.—As the normal functions of the cutaneous nerves are evidently interfered with in this disease treatment must be directed to the abatement or removal of the underlying causes of the nerve derangement. Causal and physiological methods may be required to bring the system into a better condition of nutrition and restore the nervous equilibrium. Frequently benefit will be experienced by a change from an animal to a vegetable diet and an interdiction of such nerve disturbers as coffee, tea, alcoholic stimulants and tobacco; but these and other needs will be apparent in a given case and need not be approximated here. The employment of an indicated drug may be the most important of all treatment, and in all cases will aid in giving relief from the intense itching as well as assisting in the cure. Often the relief experienced from internal remedies will render unnecessary any but the simple local means of cleanliness. Frequent hot baths in water made slightly alkaline with bicarbonate or biborate of soda or saline with ordinary salt will be found helpful. Longer baths of twenty to forty minutes may be serviceable in severe cases, and the continuous bath has been recommended for aggravated forms. If large blebs form they may be punctured before the bath to give greater ease from the itching; and occasionally a mild *boric acid* ointment applied after the bath will be found comforting. General *galvanization* and the use of the mild *high frequency currents* have been useful in the milder forms of this disease. Among the lotions recommended, *liquor carbonis detergens* (one part to ten to one hundred of water), or the permanganate of potash (1:2000) are the best. The latter has, however, many well-known disadvantages and cannot be urged except in extreme cases. Among internal remedies see *Ant. tart.*, *Carbol. acid*, *Clematis*, *Croton tig.*, *Iris vir.*, *Kali brom.*, *K. iod.*, *Lach.*, *Nat. mur.*, *Phos.*, *Ranun. bulb.*, *Rhus tox.*, *Sepia*, *Sil.*, *Tellurium*.

IMPETIGO HERPETIFORMIS

DEFINITION.—A rare affection of the skin, in which an eruption of miliary pustules occurs in groups, usually during pregnancy, and is attended with severe constitutional symptoms.

Of the thirty odd recorded cases of this disease, few have been observed in this country, and Crocker states he is not aware that any case of the disease has been recorded in England. Kaposi who has observed most of the cases believes it to be a disease *sui generis*. It is chiefly from the latter's description (*Dis. of the Skin*, 1895) that the following account is taken: The disease comes on with chills and high fever, dry tongue, vomiting and some delirium, and these appear or are aggravated before fresh outbreaks of the eruption; the accompanying high temperature remaining continuous or remissions intervene. The eruption appears in patches from the size of a lentil to that of a penny, and consists of pinhead pustules, opaque at first and later greenish-yellow, situated on a red and slightly swollen base; on the first or second day they dry into dirty brown crusts, and new pustules form around them in one or more closely placed circles; these in turn dry and add to the central crust. Thus the patches, usually beginning first on the inner aspect of the thighs, groin, axillæ, around the navel, etc., may spread over large areas and merge with adjacent patches until at the end of three or four months the entire surface may be involved. The skin is hot, swollen, more or less covered with crusts, or denuded and oozing as in eczema, smooth or uneven, but never ulcerated, while excoriations and fissures may be found in places still bordered by circles of pustules. In some cases the mucous lining of the mouth and throat contains circumscribed gray patches with a depressed centre, and in one autopsy pustules and small ulcers were found on the folds of the œsophagus, most numerous near the cardiac portion of the stomach.

ETIOLOGY AND PATHOLOGY.—These are obscure. The fact that nearly all cases have occurred in pregnant women shows the existence of some factor favored by the condition of the system during the period of gestation, and that the pathology may be akin to herpes gestationis. The further fact that there was an absence of septic, uterine or other disease in most cases certainly supports the supposition that it is reflex in origin and trophic in results on the skin. Evidences of nephritis and phthisis have been discovered on post-mortem examination. The blood and lymph vessels show dilatation, with swollen cells in and about them, especially in the papillary layer beneath the pustules.

DIAGNOSIS would not ordinarily present any difficulties, especially if the patient was a pregnant woman. The diagnostic points are the occurrence of grouped pin-head, yellowish-green pustules drying into darker crusts, with successive growth by the formation of new pustules in circles immediately around the preceding lesions, the sites of preference and the continuous spreading therefrom, the marked constitutional symptoms named above, and the almost certain tendency to a fatal termination. Absence of multiform lesions



Pyoderma Gangrenosum

SURFACE OF RIGHT ANKLE

aged sixty-six. Disease began five years ago (started as a small ulcer due to friction of boot-top), which after rupture increased in size as the inflammation spread. The lesion consisted of a large, irregular, necrotic ulcer with a thick, raised border at the periphery. The ulcer was surrounded by a zone of redness and swelling. The adjacent skin was macerated and the ulcer was filled with necrotic material.

and a more uniformly persistent course would distinguish it from *dermatitis herpetiformis*. In its advanced stage it might be confounded with *pemphigus vegetans*, but the history of the onset of the latter by a bullous eruption, or the former by grouped pustules, would be distinctive.

So far the PROGNOSIS has been very grave. Of fifteen cases mentioned by Kaposi thirteen died.

The TREATMENT is practically on the same lines as outlined for *dermatitis herpetiformis*, with the selection of a drug to meet the constitutional symptoms. The uterus should be emptied of its contents. *Iris ver.*, *Clematis*, *Croton tig.*, *Kali brom.*, *Lach.*, and *Nat. mur.* are remedies most likely to be indicated.

DERMATITIS REPENS

This peculiar form of dermatitis was first described by Crocker in 1888 from the observation of three cases. He defined it as "a spreading dermatitis, usually following injuries, and probably neuritic, commencing almost exclusively in the upper extremities." According to Crocker, who has treated a dozen cases, the disease begins with a "free exudation of fluid in the form of vesicles or bullæ, the result of which is the complete denudation of all the upper layers of the epidermis and leaving an intensely red surface oozing at numerous points. Occasionally when the process is subacute visible exudation may be slight or absent; the border consists of the epidermis undermined and raised up by fluid exudation, and is usually sodden. The disease spreads by direct extension, not by the formation of fresh foci either near or away from the original morbid area. It may extend over a part or the whole of a limb, or even a portion of the body, and is not accompanied by marked itching, burning or disturbance of the general health. Finally, though very rebellious to treatment, it ultimately yields to local remedies of an antiseptic character." A case of my own began with a small blister on the right leg which developed into an epidermic ulcer and slowly enlarged, resisting all treatment for five years before she appeared at the clinic. Then there was found a roundish ulcer about three inches in its longest diameter with an intensely red, flat, uneven base, from which there persistently oozed a watery fluid. The objective appearance of the lesion alone was strikingly like a rodent ulcer. A careful microscopic examination of sections from the base and indurated border, however, showed it to be a purely inflammatory process, which had resulted in denuding all the upper layers of the epidermis. There was no local varicosis, and examination of the heart, lungs and of the urine gave negative results. The patient was well nourished. Therefore no change was suggested in her diet or mode of life, and she was permitted to continue the same local dressing. The marked aggravation of burning sensations *after sleep* and the local tenderness led to a prescription of *lachesis* 30. This drug gave her almost magical relief from the severe nocturnal pains which had deprived her of much sleep for years, and led to almost immediate local improvement, noticeable to all who saw her, and

which continued with short interruptions for about three months, and she seemed then fairly on the way to recovery. At this time the patient was attacked with pneumonia and did not return to the clinic.

Acrodermatitis perstans, a condition similar in location, origin, lesions and clinical history to dermatitis repens, has been described by Hallopeau, Andry and others. Its characteristics are the frequent appearance of secondary eruptions, chiefly pustular, on portions of the body distant from the seat of original infection, its frequent reappearance in the same place, its persistence and possible fatal termination.

ETIOLOGY.—It would appear that most cases originate from some local traumatism, however trivial, causing neurotic disturbance and the resulting changes in the skin. The following injuries have been noted as occurring prior to the disease, at or near to its point of beginning: a superficial wound of hand with dislocation of thumb from a fall, injury of hand necessitating amputation of a finger, superficial burn of the hand, an abrasion of the knuckles, a splinter run under the nail, an injury of shoulder, arm and hand, an injury to the sole of one foot, a scratch of a finger from a bone, and in the same patient at another time, from tearing away a finger nail. A case of the editor's exhibited at the Flower Hospital, followed repeated pricks on the index finger from a needle.

PATHOLOGY.—The morbid process appears to be due to a peripheral neuritis set up by an injury, no matter how trivial. While secondary parasitic infection is generally admitted to be responsible for the prolonged course of these diseases, Hallopeau regards both as purely microbic. The *staphylococcus albus* has been frequently found in the lesions.

DIAGNOSIS AND PROGNOSIS.—Dermatitis repens should be easily diagnosed from *eczema* by its elevated, abrupt and advancing border producing the appearance of a superficial ulcer. From *syphilis*, *lupus* and *epithelioma*, the nature and abundance of the exudation together with the absence of diagnostic signs of those diseases would be sufficient for differentiation. An investigation of the microscopic anatomy of the lesions might be necessary in some cases. The same general diagnostic remarks may be made of *acrodermatitis perstans*. Complete recovery may be expected except in severe cases of the latter disease.

TREATMENT.—Among the antiparasitic applications recommended are a ten per cent. *ammoniated mercury* ointment, ten per cent. solution of the *permanganate of potash*, and saturated solutions of *sodium hyposulphite* or *pyoktanin-blue*. It is wise to cut away the undermined epidermis and thoroughly cleanse the affected surface with weak solutions of *electrozone* or *hydrogen peroxide* before applying the antiparasitics. *Carbol. acid*, *Hepar*, *Lach.*, *Merc. viv.*, and *Ranunc. bulb.* are the most likely drugs.

PELLAGRA

(*Lombardy erysipelas; Lombardy leprosy; Lepra Italica; La rosa.*)

This is a tropho-neurotic affection which was first observed in Spain over a hundred and fifty years ago, and yet continues endemic in the northern part of that country, central Italy, France, Portugal, Egypt, Mexico and Roumania. In the last named country, according to Morris, in 1888 out of a total population of about five million, over ten thousand were suffering with pellagra. No cases have been reported in this country. The disease usually begins in the spring, and is believed to be due to the toxic effect on the nervous system from eating diseased maize; this producing disturbances in the cerebro-spinal, digestive and cutaneous spheres, and in a variety of forms. One of the earliest symptoms is paresis of the lower limbs. This may be preceded or accompanied by pains in the joints, burning in the back, and gastro-intestinal disturbances such as anorexia, thirst and diarrhoea. The cutaneous changes begin with a deep red or brownish erythema on parts most exposed to the sun. This is attended with itching, burning and some swelling. Petechiæ are frequent and bullæ may form, rupture and leave ulcers. In two or three weeks desquamation follows, leaving the exposed skin pigmented. Toward the end of the summer the disease subsides to recur again in the following spring; thus the attacks may appear annually for five or more years, the skin becoming more thickened and deeply pigmented for the first few years. If the patient lives on subject to the annual recurrences, after five or six years atrophy of the skin begins, it becomes dry and shrunken as in old age. Even before this period the patient may become emaciated, weak, suffer from pain, severe headaches, disturbances of vision, colliquative diarrhoea and from an increase of cerebro-spinal symptoms. Unless relieved, sooner or later stupor, delirium, melancholia, suicidal mania, etc., together with motor paralysis of the limbs, bladder, etc., are likely to occur. In this deplorable state the victim passes away, or some intercurrent affection of the heart or lungs hastens a fatal issue. The duration for mild cases is rarely more than fifteen years.

ETIOLOGY probably includes the predisposing factors of poverty and ignorance with the attendant lack of nourishment and ordinary sanitation. The essential cause is the continued use as a food of unsound or decomposing maize which contains or develops a toxic substance. Both sexes are liable to contract the disease and heredity may exert an influence, especially if the systemic nervous symptoms are pre-eminent.

PATHOLOGY.—Whether the toxin or germ is developed in the maize or in the tissues of the body is unknown. Examinations of the fungi found in the grain show them to be harmless, and post mortems have yielded various fatty, atrophic, cirrhotic and sclerotic conditions of the viscera. Symmetrical sclerosis of the posterior columns of the spinal cord is the most constant morbid process.

DIAGNOSIS must be based on its endemic character and in many cases upon systemic symptoms other than those of the skin. Cases have been reported among Italian sailors coming to New York who eat polenta of their own making.

PROGNOSIS ought to be good for mild cases seen early, and for whom proper therapeutic measures could be employed.

TREATMENT.—This would seem to be prophylactic as regards the case of grain, and dietetical, hygienic and climatic. Massage, galvanism, alcoholic and saline embrocations might benefit the systemic conditions.

Arg. nit., *Arn.*, *Arsen.*, *Bovista* and *Phos.* may be symptomatically indicated.

ACRODYNIA

(*Dengue fever; Epidermic erythema.*)

This is an acute infectious disease, associated with articular and muscular pains and with lesions of the skin similar to the exanthemata, and occurring in certain localities, especially along the coast line of the warm countries of Europe, America, Asia and Africa, also in the Philippine and Sandwich islands. The disease comes on with premonitory anorexia, vomiting, diarrhoea, often œdema of the face, hands and feet, disturbances of sensation, such as darting pains, formication, numbness, burning heat, etc., and sometimes motor derangements, such as spasms and cramps of the muscles. The eruption comes out usually upon the hands and feet, occasionally extending over the limbs to the trunk. It consists of erythema in places resembling chilblain, and sometimes papules, pustules and blebs intermingled with the redness, while on the other parts the skin becomes stained a brownish or blackish hue. Purpuric and gangrenous spots have also been observed. The thickened epidermis is thrown off in large scales, and the disease ends generally in recovery in from two to four weeks. Occasionally relapses may prolong an attack into months. It may be fatal in the weakly or aged.

ETIOLOGY.—Acrodynia is contagious, and probably belongs among the exanthemata; it is relatively rapid in its spread, is usually transmitted by means of ships or travelers, and attendants and physicians have been infected. High atmospheric temperatures favor its development, and soil and clothing are considered to be the media of transmission.

PATHOLOGY.—Meningitis and sero-purulent infiltration of the pia mater have been noted. The spinal nerve centres may be affected by the toxic element and present the primary morbid manifestations.

DIAGNOSIS AND PROGNOSIS.—All cases may be expected to recover unless occurring in the very young or old or debilitated subjects. The muscular and articular features, both during and after an attack, and the peculiar eruption must be relied upon to diagnose this disease from the *exanthemata*.

TREATMENT.—The general methods used in the care of the eruptive fevers are the best, such as light or liquid diet, rest in bed, warm alkaline baths and the indicated remedy. The same class of remedies mentioned under pellagra may suffice.

HYDROA

This term has deservedly fallen into disuse, and is almost entirely ignored by the German school. Although Crocker speaks of it as “revived by Bazin for certain groups of bullous eruptions which, in their clinical aspects, stand midway between erythema multiforme and pemphigus,” and apparently places hydroa herpetiformis (dermatitis herpetiformis) in this group, there is very little in the descriptive literature of these affections to show why they should not all be assigned to erythema multiforme, dermatitis herpetiformis or possibly pemphigus. Even Bazin, who made three varieties, *hydroa vesiculeux*, *hydroa bulleux* and *hydroa vacciniforme*, subsequently admitted that the first is a form of erythema or herpes iris, while it is generally recognized that hydroa bulleux is a variation of dermatitis herpetiformis, and it is not improbable that the third may be also an extreme variation of that polymorphous disease, or of multiform erythema. This form, *hydroa vacciniforme*, is now considered to be identical with *hydroa puerorum* of Unna, and the *recurrent summer eruption* of Hutchinson, or *hydroa vacciniforme seu æstivale* of Crocker. Only a few cases of this affection have been observed. Its chief characteristics are its occurrence and recurrence in summer, almost exclusively attacking young boys, and ceasing spontaneously as manhood is approached. The eruption occurs chiefly on the exposed parts of the skin, is symmetrical, and seems to be brought on usually by exposures to the sun, cold, winds and artificial heat or cold. It consists of erythematous spots on which arise small or large vesicles, singly or grouped; these become umbilicated, dry up, and when the crust falls off leave depressed scars. Sometimes the process is arrested and scarring does not take place. Burning sensations may precede the eruption and slight itching attend it. An attack may run its course in two or three weeks, or fresh crops may prolong its duration. The **ETIOLOGY** is only indicated by its occurrence in boyhood, and from exposures to heat and cold. Vaso-motor disturbances are probable factors.

PATHOLOGY.—The morbid process commences as an inflammation of the epidermis and corium, followed by the formation of vesicles in the epidermis and finally by necrosis.

DIAGNOSIS AND PROGNOSIS.—Diagnosis must be made from dermatitis venenata, erythematous lupus, pemphigus, erythema multiforme and dermatitis herpetiformis. The age of the patient, exposed locations of the vesicoblebs, and recurrence under certain conditions during the period of youth, are diagnostic. Prognosis is uncertain until adult years are reached.

TREATMENT is along the same lines as considered for the exudative

erythemas. For a list of possible remedies, see those under erythema multiforme.

POMPHOLYX

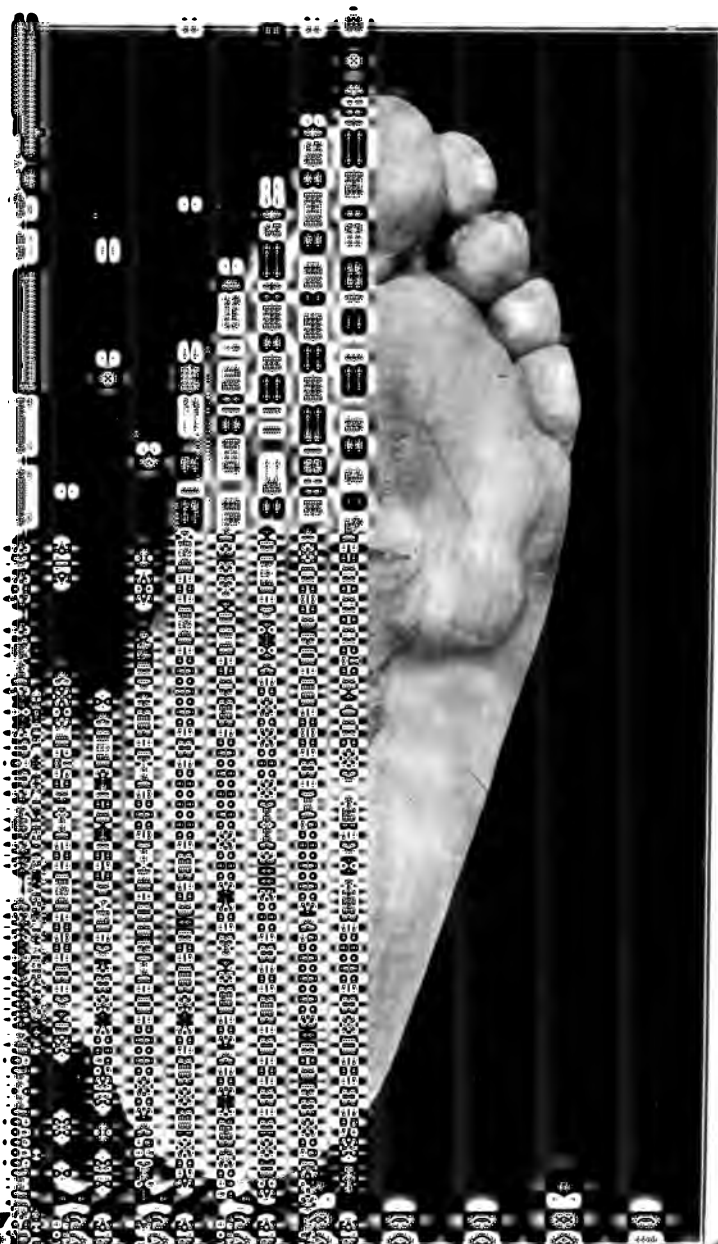
(*Cheiro-pompholyx*; *Dysidrosis*.)

DEFINITION.—An acute vesicular and bullous eruption, usually limited to the hands and feet, and nearly always symmetrical in distribution.

SYMPTOMS.—The eruption always appears upon the hands, most often between the fingers and upon the palmar surface, rarely upon the dorsal surface. The feet are seldom affected as much as the hands, and may escape altogether. There may be sensations of burning and itching shortly before the lesions appear. These consist of small, deep-seated vesicles, which show through the epidermal layers, resembling boiled sago grains in appearance. They show a tendency to group, often around the orifices of the sweat duct, and as they appear more distinctly on the surface, may run together and form large, flattish bullæ, filled with a clear fluid. The contents of the vesicles or bullæ gradually become opaque and finally purulent, dry up in the course of a week, leaving their epidermal covering to be exfoliated and the newly formed skin beneath red, dry and tender. The itching or burning sensations usually subside with the full distention of the lesions, which, however, show no tendency to spontaneous rupture, but may be broken by scratching or other traumatism. The disease tends to recur, and in rare cases may be almost continuous for a long time. Exceptionally severe cases may affect the whole palmar and other portions of the hand, and corresponding parts of the feet. In other cases the attacks may be so light as to be hardly noticeable and quickly subside. The disorder occurs most frequently in individuals who habitually perspire freely, and it was thought by Tilbury Fox to be due to sweat retention or a true *dysidrosis*.

ETIOLOGY AND PATHOLOGY.—The disease may occur in either sex, but is most frequent in women, especially in young, neurotic women, who have been subject to some nervous strain or worry. In those predisposed, mental emotions may precipitate an attack. Changes of temperature may act as an exciting cause, especially heat. Hence the disorder is more common in spring and summer, and may be brought on by exposure of the hands to artificial heat at all seasons in those subject to attacks. Organic and functional cardiac disease may act as a cause. *Pathologically*, this disease is probably a vasomotor neurosis, with vesicle formation in the rete; the vesicles being at times directly connected with the sweat ducts, while in other instances no connection is apparent. Unna believes that a micro-organism similar to the tubercle bacillus is the pathological agent.

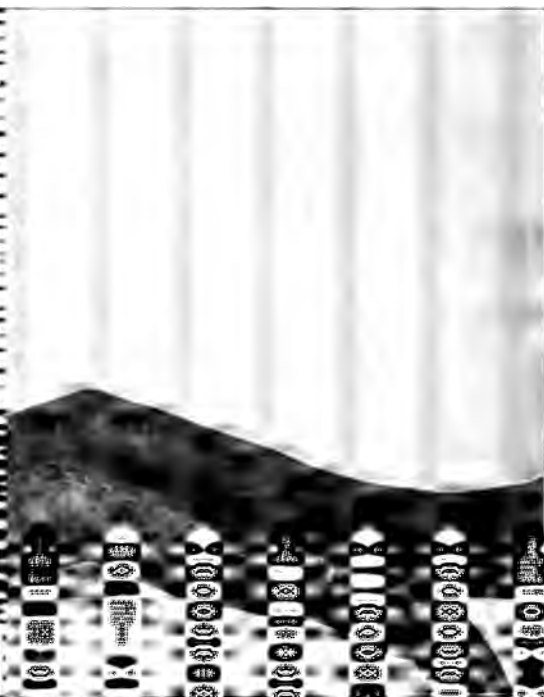
DIAGNOSIS.—The limitation of pompholyx vesicles to the hands and feet, without any tendency to rupture and produce a continuous discharge, but to dry up with or without first forming bullæ, and perhaps to recur repeatedly,





OMPHOLYX

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are characteristic points of difference from other vesicular diseases. Neurotic *eczema* may show the same sago-like vesicles, but they rupture spontaneously and leave a weeping surface behind. Moreover the *eczema* vesicles are more apt to appear on the back and sides of the fingers than on the palmar surfaces. If bullæ form they can be distinguished from similar lesions of *pemphigus* by their formation from the coalescence of small vesicles.

PROGNOSIS.—An individual attack is usually over in ten to twenty days, but recurrences are not uncommon after an indefinite interval.

TREATMENT.—The affected parts can be made more comfortable by applications of simple ointments and thorough wrapping with a bandage. The curative treatment is by the internal remedy which, rightly chosen, nearly always cuts short the attack and tends to prevent a recurrence. Sources of nervous depression should be combated, other disorders treated and means to improve nutrition instituted. Among remedies see indications for *Bufo*, *Hepar*, *Nat. sul.*, *Phos. acid*, *Ranunc. bulb.*

PEMPHIGUS

DEFINITION.—A chronic cutaneous disease characterized by an eruption of variously sized bullæ in successive crops, usually without antecedent lesions and pursuing an indefinite course.

Pemphigus as a distinct entity is a rare affection. Formerly the name was given to numerous associated or secondary bullous eruptions occurring in the course of other skin diseases; some of the older writers making many varieties, notably B. H. Martins who succeeded in naming ninety-seven. The wholesale weeding out of pemphigoid eruptions has left a clearer but by no means typical disease, and some authorities with Kaposi still ignore the exclusion of some forms of bullous lesions now included by most writers with dermatitis herpetiformis. *Pemphigus*, as regarded to-day by the majority of authors, is divided into two general types, *pemphigus vulgaris* and *pemphigus foliaceus*, with *pemphigus vegetans*, *pemphigus acutus* and *pemphigus neonatorum* as subordinate varieties.

***Pemphigus vulgaris* (Chronic pemphigus).**—This represents the common form of the disease. There are usually prodromal febrile symptoms, which may be remittent, intermittent or continuous, with exacerbations at the onset of a fresh crop of the lesions. Anorexia, vomiting, functional disturbance of the heart and lungs are frequent also. During the course of a severe or prolonged attack there may be alarming prostration presaging a fatal issue. The eruption may appear on almost any part of the body, but is usually most often seen or abundant on the extremities; at first bilateral, often symmetrical, it tends later to irregularity in distribution (*pemphigus disseminatus*), and sometimes to arrangement in groups. It appears in round or oval bullæ, filled tense with a translucent fluid, varying in size from a pea to a hen's egg or larger,

surrounded at first by the unchanged skin; it sometimes later shows a narrow encircling band of redness. The number of lesions varies from two or three, rarely only one (*pemphigus solitarius*), up to a hundred or more. They appear in crops at intervals of one or more days, each individual crop pursuing a fairly uniform course; they may remain stationary in size and shape, or enlarge and sometimes coalesce; their contents are at first serous, rarely bloody (*pemphigus hemorrhagicus*), and later purulent, with corresponding changes in color. Whether ruptured or not they gradually dry up and form with their roof wall brownish crusts, which in a few days fall off, leaving uncovered a new epidermis of a reddish or purplish color, and sometimes terminating in brownish pigmentations of a few weeks' duration. The length of a whole attack may vary widely from six weeks to as many months. It shows a tendency to subside by a less and less number of lesions appearing, or by longer intervals between the crops until they cease to develop altogether. The future is uncertain; most often the disease recurs after a rest of a few months or longer, but it may not return at all. On the other hand, the attacks may recur with great frequency to end favorably later, or persist to a fatal termination. Locally the sensations may be slight, or moderately severe burning, itching and painful tension may be felt; these may be increased from accidental rupture and excoriation of the lesions, or by the numerous lesions and consequent crusts.

Extreme variations from the ordinary clinical type of chronic pemphigus may be more or less distinct, often less. Occasionally only the mildest general symptoms with a few lesions and short duration are seen, representing one extreme or *pemphigus benignus*. More frequently the variations are intermediate and less distinct between the benign form and the severe persistent type attended with prostrating pyrexia, cachexia and sometimes membranous growths (*pemphigus diphthericus*) found in or about the lesions; or infiltration, sloughing (*pemphigus gangrenosus*), or again ulceration of the superficial layers of the skin, representing the other extreme, or *pemphigus malignus*. Even the most benign forms of pemphigus may, without apparent cause, take on malignant phases and sometimes run a rapid and fatal course. Again, pemphigus vulgaris may merge gradually into the distinctively grave form known and described as pemphigus foliaceus. Following resolution of the bullæ, milia sometimes form on their sites and are shed in the usual way after persisting for several months. In many forms of the disease, the mucous membrane of the mouth, throat, nose or eyes may be attacked, and one or more cases have been reported as occurring on the mucous surfaces without involving the skin. In one grave variety the attack nearly always begins in the mouth or throat. This form is also characterized by the development of peculiar vegetations in the cutaneous lesions, and hence was named by Neumann, pemphigus vegetans, and is now described by some writers as a definite form of the disease.

Pemphigus vegetans is rare, and only about fifty cases have been recorded as occurring in America. With the onset of an attack there are general feelings of languor, malaise, etc., followed in nearly every case so far reported by symptoms of sore throat or sore mouth, pain on eating and swallowing being first

noticed as surface signs of the disease. In these cases on the mucous membrane may be found ill-developed bullæ, or their loosened membranous wall, which becomes later detached, leaving denuded, excoriated and exquisitely tender patches of equal size. After a variable interval of a few days or weeks ordinary pemphigus lesions appear about the vulva or on the hands, feet, groins, axillæ and other parts of the surface, but show no tendency to become universal. Here the semblance to the common form of the disease on the skin ceases. Instead of drying up, the lesions become excoriated, ulcerate and sometimes spread by concentric peripheral growth, the primary lesion perhaps crusting over while new blebs form about it; while in certain regions as the genito-crural, axillary, anal or about the mouth and nose there arise more or less fungoid, papillary or wart-like growths, accompanied with a sticky, offensive secretion. These may enlarge into extensive patches and resemble condylomata. Some patches may heal, but new crops continue to appear and lead, as a rule, to more and more surface involvement, which, together with the painful state of the mouth and throat interfering with nutrition, rapidly exhausts the strength, and death occurs within a few weeks or months from asthenia or some intercurrent disease. Sometimes periods of improvement may alternate with aggravations for a longer time. The milder cases, including a few which followed vaccination, recovered.

Pemphigus acutus as a distinct variety has been denied by some, beginning with the older Hebra, who claimed that such reported cases were instances of mistaken diagnosis. The number of cases reported by competent observers would seem to refute this, though the type must be extremely rare in adults and uncommon in children if we eliminate the doubtful cases in which the bullous lesions were probably accidental features of erythema and the eruptive features. These attacks last from one to six weeks, and are usually preceded by febrile disturbance one or two days and attended with fever throughout the eruptive stage. When the last bullæ dry up the fever abates. Sometimes the pyrexia begins with distinct chills and the temperature continues high and may run into a typhoid state, or become complicated with pulmonary, renal or other affections, constituting one of the so-called forms of *pemphigus malignus* and ending fatally. Among the seventeen cases reported by Pernet, the history of the majority points to an infective origin of the nature of animal poisons such as bites. Demme considered a diplococcus to be the etiological factor. If this belief of the causal factors can be demonstrated beyond a doubt, it will be necessary to assign pemphigus acutus to another group apart from pemphigus. When this type occurs in infancy, **pemphigus neonatorum**, the disease is liable to be mistaken for the bullous syphilide. It attacks infants usually who are exposed to unsanitary surroundings, and outbreaks in hospitals and other institutions appear to be contagious or epidemic in nature. Local prevalence of attacks has been noted in some instances as limited to the practice of a certain midwife, indicating its probable contagious origin. Generally there is antecedent fever, which remits with the first crop of bullæ. Other crops follow in rapid succession without any special predilection, but often leaving the

hands, feet and mucous outlets exempt. Most cases run a favorable course in two to four weeks, but even in apparently healthy and well-nourished children the attacks may assume a grave type, the blebs burst, and ulcers or gangrene follow. The latter cases are likely to prove fatal in a week or ten days. When the contagious form of infantile pemphigus prevails it is frequently communicated to adults, in whom it runs a milder course. There is no doubt that this form is due to infection from pus-cocci, and it is generally admitted that it is an infantile form of impetigo contagiosa. Practically, it is not a form of true pemphigus. The same may be said of a similar type which occurs in warm latitudes, *pemphigus contagiosus tropicus*.

Pemphigoid eruptions formerly looked upon as variations of pemphigus vulgaris, such as *pemphigus pruriginosus*, in which the intense and persistent itching and resultant excoriations from scratching after a short time produce secondary changes which completely mask the initial lesions, are now generally classed with dermatitis herpetiformis; while another term, *pemphigus hystericus*, probably given to the same clinical type, as well as the variations in objective features designated as *pemphigus circinatus* and *pemphigus serpiginosus*, are properly included in the same category.

Pemphigus foliaceus.—The distinct features of this form of pemphigus are so different that were it not sometimes consecutive to severe pemphigus vulgaris it might be looked upon as a separate disease. It may, however, show its peculiarities at the onset, and whichever way beginning is an exceedingly rare disorder. The lesions consist of flaccid bullæ usually developed from the apparently normal skin. They may contain so little fluid as to be only slightly raised above the surrounding skin, or as an effect of gravitation this may settle at one side, similar to a partly filled blister. The contents of the blebs soon become turbid, then purulent and sometimes sanious. The individual bullæ soon rupture and the flaccid wall acquires a feeble adhesion to the centre of its base, while the periphery progressively separates, curls up, presenting a resemblance to dead leaves; hence the terms pemphigus foliaceus given to it by Cazenave. The denuded skin, left somewhat exposed between the partly detached covering of the original bullæ, and at first moistened with offensive serum and sero-pus, does not dry up, but exudes like an eczema rubrum, continually forming by desiccation thin crusts. New epidermis may re-form in spots for a time, but is soon rubbed off or separated by renewed exudation or transient bullæ. At first the disease may involve only a small area of the skin, but it gradually and symmetrically spreads until in the course of months or years every part of the surface is affected, except bullæ may not form on the palms or soles. The skin of these parts, nevertheless, becomes thickened, dry and easily cracks, so that practically the disease may be said to be universal in distribution. The disease is attended with a sickening odor, which may pervade the room. Sensations of tension and stiffness are felt from the desiccation constantly going on: burning, smarting and sometimes itching are also experienced. The oral mucous membranes may be affected, and instead of healing as in ordinary pemphigus, the blebs soon macerate and are transformed into

grayish membranous patches. These may shed their diphtheritic covering, become raw, glazed and reddish-brown; according to their location, mastication, deglutition, respiration or vocalization may be seriously impeded. The conjunctiva is rarely affected, but in such cases vision may be lost from atrophy and adhesions of the membrane to the eyeball. The nails become thinned, curved, furrowed and are sometimes thrown off; the hair gets brittle and falls out generally or in larger spots, leaving small tufts; the eyes may become ectrophic, and furuncles and abscess add to the already deplorable condition of the sufferer. The bodily temperature may remain normal throughout the course of the disease, or in the advanced stages there may be a low type of fever which together with insomnia and gastric disorders result in extreme emaciation, great prostration, rendering the patient very vulnerable to intercurrent disease. The course of pemphigus foliaceus is however usually marked by remissions, sometimes pronounced enough to raise false hopes of recovery.

ETIOLOGY AND PATHOLOGY.—Little is positively known regarding the causes of pemphigus. Lack of vital resistance is a predisposing condition, as shown by the attacks more often occurring in infancy, childhood and in persons debilitated from physical or nervo-mental disturbances. Rarely the predisposition may be hereditary. Kaposi mentions an instance where cases occurred in the same and lateral branches of a family, and Carl Blumer is quoted by Zeisler as reporting bullous eruptions appearing in sixteen members of the same family. Slight local injuries seem sufficient to bring on an outbreak in these cases of existing predisposition. Even without any evidence of hereditary tendency injuries of the peripheral nerves, spinal cord or brain have been noted as causes of bullous eruptions. Similar lesions have occurred in association with organic disease of the cord, its membranes, the sympathetic and the peripheral cutaneous nerves. Hysteria and other functional disorders of the nervous system have been reported as probable causes. Thus without enumerating the many different individual diseases of the nervous system which have been observed associated with pemphigus, it will be seen how impossible it is to determine any definite relationship; but only, as Crocker has remarked, that "the evidence goes to show that bullous eruptions may occur in connection with and probably indirectly due to lesions of the nervous system situated anywhere from the centre to the periphery of the sensory tract, though similar lesions are much more frequently found with no bullæ." It is probable that most cases of pemphigus acutus and pemphigus neonatorum are of septic origin, and some possibly contagious. Pernet reported seventeen cases of acute pemphigus in butchers and others who handled animals or dead portions of animals; in seven of these there was a distinct history of injury to the hand, and six out of seven butchers affected by the disease died. He refers to the presence of a diplococcus in the lesions, as confirming the previous researches of Demme, Whiphouse and others. The uncertainty as to whether the bacteria were primary or secondary to the development of the lesions lessens the significance of these investigations. Eppinger has stated as his conclusions that pemphigus was not a bacteriological disease, but probably due to toxic poisoning. Future

investigations will probably demonstrate that true pemphigus is infectious, due to an auto-intoxication.

PATHOLOGY.—A marked increase of the eosinophilous cells in both bullæ and blood has been noted, as in dermatitis herpetiformis. Recently it has been shown that these cells are found in artificially produced vesicles on sound skin; so the theory that they acted as irritants to the nerve centres is no longer tenable. The bullæ are usually superficially situated between the rete and the corneous layer, or in the upper part of the rete. Weidenfeld calls attention to "the enormous dilatation of the blood- and lymph-vessels always present, together with the cellular infiltration of their walls, the cedema of the papillary layer of the cutis, the changes in the elastic tissue fibres, and the cedematous condition of the rete."

DIAGNOSIS.—Pemphigus is to be distinguished from other affections in which bullous lesions develop. This is usually easy in chronic pemphigus from the lesions arising in the apparently sound skin, or at most with slight redness, and by their coming in crops for a more or less protracted period. The rarer forms of the disease may at times present difficulties in the way of recognition. By recalling the diagnostic features of any form and comparing them with those of any suspected disease the doubt as to their nature will seldom be more than temporary. As a rule, the comparison need include only a few of the more prominent characteristics of other diseases, thus:

Dermatitis herpetiformis bullæ are usually associated with other lesions, papules, vesicles, pustules, erythema, etc., pursue a variable course and are accompanied by distinct itching or burning. *Syphilitic* blebs are rare except in early infancy, and then show a marked preference for the palms and soles. The rare pemphigus vegetans has been mistaken for cutaneous syphilis, but the history of primary bullæ, sites of preference, grave character and the failure of antisymphilitic treatment would exclude the latter. Bullæ occurring in *leprosy* would be associated with anæsthesia or other signs of that disease. *Varicella bullosa* is easily recognized by its consecutive occurrence and acute course. The bullæ of *impetigo contagiosa* are associated with pustular lesions; it is contagious and auto-infectious, but readily yields to treatment. The bullous lesions of *erythema multiforme* show evidences of other inflammatory lesions, and occur chiefly on the dorsal surfaces of the hands and feet. *Urticaria* wheals may develop into bullæ, but the mode of evolution, presence of other wheals with stinging or itching sensations and their ephemeral course leave no doubt of their nature. The crusts or scales of generalized *psoriasis*, *dermatitis exfoliativa*, *lichen rubra*, *pityriasis rubra* and *eczema rubrum* might possibly be confounded with advanced pemphigus foliaceus; but the history of the original or primary lesions and their subsequent changes, even if no flaccid bullæ could be detected at the time, would usually serve to differentiate the latter from any one of the former. Lastly, it may be necessary in some cases to exclude bullous *drug eruptions*, which may be produced by full doses of the iodine or bromine salts and other medicinal substances. This can be done by inquiry as to the medicines used within the few preceding weeks. Malingers, insane or emo-

tionally diseased persons sometimes artificially produce blisters by applications of vesicants. The surroundings or circumstances will usually give some clue in such cases.

PROGNOSIS.—The prospect of cure for ordinary cases of pemphigus is reasonably good. The possibility of the simple form merging into pemphigus vegetans, which is usually fatal, should not be forgotten. The forecast must also be qualified as to the duration of an attack and the liability to relapse. In pemphigus vegetans the outlook is always bad, and the acute pemphigus of septic origin is largely fatal. Long duration of the chronic forms and advanced age are unfavorable conditions.

TREATMENT.—Regulation of the diet and other physiological habits are important in every case of pemphigus to bring the patient into the best state of nutrition. These needs will vary with each individual case. *Locally* the objects to be attained are cleanliness and protection. In mild cases local methods other than cleanliness need not be insisted upon, as the internal treatment is usually effective. Even in the severer forms local measures may be largely governed by the degree of comfort they afford the patient. While the warm bath made mildly alkaline with borax, bicarbonate of soda, or aqua ammonia, saline with salt, or soothing with bran, is commonly useful and comforting, it does not always agree with patients. In such cases limited sponging of the surface where cleanliness is absolutely essential may be substituted. For aggravated or universal pemphigus the continuous hot-water bath as employed in hospitals in Vienna, wherein the patient lives for weeks or months, is of great service. In whatever way measurable cleanliness is maintained, following it, protection should be given to the surface when needed. This may consist of simple dusting powders of starch or combined with oxide of zinc, compound oleate of zinc, etc., simple lotions of glycerine and rose water, or application of sweet almond, cotton seed, sweet or linseed oil. Sherwell has reported a case of pemphigus foliaceus cured with linseed oil employed both locally and internally. Some of these can be used at the same time (when suitable) as vehicles for mild antiseptics when called for by the local conditions, such as two to five per cent. of boric acid, one per cent. of subnitrate of bismuth, one to two per cent. of carbolic acid or one-tenth of one per cent. of thymol. I have found an aqueous solution (one to five hundred) of permanganate of potash, the same as employed in eczema, a comforting local application. In fact, almost any application adapted to eczema may be useful in severe pemphigus. After all, the primary objects of local measures are to be kept in view, for they have no curative action. For the latter purpose we must look to internal medication.

Arsenicum, *rhus* and *phosphorus* are most often indicated for internal administration. See also *Bufo*, *Colch.*, *Copaiva*, *Dulc.*, *Kali brom.*, *K. iod.*, *Lach.*, *Nat. sulph.*, *Secale*, *Thuja*.

SCLERODERMA

(*Sclerodermia*; *Sclerema adultorum*; *Scleriasis*; *Dermato-sclerosis*; *Hide-bound disease*, etc.)

DEFINITION.—A cutaneous affection, characterized by circumscribed or diffused induration and increased fixation of the parts involved.

The first case of scleroderma recorded was in Italy in 1752, and is referred to by Willan as *ichthyosis cornea*. Since then it has been described under various names, some of which are given above. It occurs in two principal forms, anatomically the same, but different in distribution and extent, and sometimes existing together. These are (1) diffused symmetrical scleroderma; (2) circumscribed scleroderma, often termed *morphœa*.

DIFFUSED SYMMETRICAL SCLERODERMA

SYMPTOMS.—This is a rare affection, but from its distinct features is now well known. It begins most frequently after exposure to cold and wet, with rheumatoid pains or stiffness in the limbs or joints. This onset may be very insidious and not clearly remembered by the patient, or the changes in the skin may be the first symptoms observed and seem to appear in a comparatively short time. The first noticeable change in the skin is in infiltration without any signs of inflammation or rise of temperature, and with or without œdema. In the former case the surface may pit on hard pressure, but owing to the density and stiffness of the parts there is none of the doughy feel of ordinary œdema; more often œdema is absent and the volume of the skin is not markedly increased. In a variable period of time the skin becomes symmetrically and progressively hard and rigid. Universal scleroderma is, however, relatively infrequent, and the palms and soles are then usually exempt. It may be said to always attack the upper segment of the body, sometimes the lower simultaneously, but never the legs without the arms being also involved. The common sites of preference are the anterior and posterior surfaces of the chest, the shoulders, upper arms, forearms, back of hands and finger-joints, back of neck, face and scalp, legs and thighs. On the chests in women it may cause a disappearance of the breasts and more or less impede respiration; on the face it restricts the movements of the mouth, eyelids and other motions of the facial muscles, giving to the countenance a distinct lack of expression. The eyelids, which often escape, may be contracted or everted according to the part most affected. The affected skin merges imperceptibly into the sound, though usually within an inch or two from the border of the indurated portion the surface may be found entirely normal. At the height of the diseased process the affected cutaneous tissues have a leathery hardness and rigidity which cannot be impressed with the finger or pinched into folds, but if the finger is drawn across it with hard pressure a whitish line is left into which the color

slowly returns. Sometimes on hasty inspection the surface may look little changed, but on careful examination the normal lines will be found largely obliterated. Occasionally the parts may have a frozen appearance without coldness, while the surface temperature is normal or only one or two degrees below. Sensibility is usually unimpaired or only slightly increased or diminished, though frequently there is pain on pressure, and itching is easily excited in some cases. Otherwise the skin may be little disturbed in its functions or normal reactions to accidental irritations; or again the surface may undergo various modifications in different cases, or at different times in the same case. Dilated capillaries in tufts or striæ may appear in contrast with the abnormally pale surface, light brown to blackish pigmentations are not infrequent in lines, spots or diffused over a large area; loss of pigment may occur in circumscribed patches of various shapes and sizes with a waxy, glistening surface resembling marble; superficial or deeper nodular-like swellings may arise and after a time disappear spontaneously; crusting of the affected surface may occur in places. One of my patients had at different times thick crusts form, made up of several supra-imposed layers of yellowish scales; they were always situated over the tibia, and their development was preceded and accompanied by itching, but without the ordinary signs of inflammation. The mucous surfaces of the tongue, gums, palate, pharynx, larynx and vagina may be affected by the disease, and be manifest in spots or bands of sclerosed membrane.

The disease may pursue an erratic but symmetrical course, changing its situation or progressively extending, and with periods of aggravation and occasional amelioration lasting for years. When it has reached its maximum evolution, or is arrested by treatment, restoration or involution may follow and the skin regain its elasticity, mobility and functions. Failing in this *atrophy* begins, the parts involved become reduced in size by compression and absorption of the fat in the subcutaneous tissue and thinning of the other layers of the skin. Even the muscles may disappear under the pressure, and the atrophic skin seem attached directly to the bone beneath. In different regions the atrophic stage produces different effects. The limbs of an adult or portions of them may be shrunken to the size of a small child; the joints appear enlarged and pseudo-anchylosed from the tensely constricting skin. Ulceration or gangrene may follow from slight injuries. Sometimes the bones become thinned or necrosed, the fingers stiff and distorted, and the hand inflexible at the wrist. On the face the lips may be shortened, the nostrils compressed, the skin drawn tightly over the bones, the teeth fall out from constriction of the gums, and rarely the eyelids are fixed, open or retracted, exposing the globe of the eyes. When the atrophic stage is well advanced, restoration to a healthy condition of the skin never occurs. The contracting process may be arrested by judicious treatment, but the extreme sclerosis is not replaced by normal tissue and deformities remain unrelieved. The general health and bodily functions may remain unaffected for a long time, but gradually nutrition fails and the patient finally sinks under emaciation, insomnia, neuralgic or rheumatic pains, mental depression, etc., into a fatal marasmus or exhaustion; more frequently some

complication of the lungs, heart, kidneys supervene and hasten the end of a hopeless state of being.

The *duration* of the disease is long but uncertain. Kaposi mentions a case of Strassmann's which had persisted for thirty-one years without loss of general health. In *children* the onset, course and termination are usually more acute, and the tendency to atrophic changes less marked or persistent. Sufferers from the disease are generally very sensitive to atmospheric changes, especially to cold and wet.

ETIOLOGY AND PATHOLOGY.—At present there is no plausible etiological basis known for scleroderma. Three out of four cases occur in females, which may, perhaps, indicate the neurotic nature of the disease, as does also its more common origin in middle life, when the nervous system is usually subject to the greatest strain, but the disorder may arise at any age; thirteen months and seventy-two years are the extremes of age in recorded cases according to Crocker. Among numerous inferential causes mentioned by authors are privations, exposures to cold or heat, rheumatism, erysipelas, traumatisms, mental emotions and diseases of the viscera. Most cases do not show a dependence on any direct cause, and in many the previous health has been good up to the beginning of scleroderma. My own cases have with one exception had associated rheumatic pains, but these do not seem to have antedated the beginning of the infiltration of the dermal tissues. The real nature of the *pathological* process is unknown, but the cause is probably neurotic from some obscure disorder of the nerve centres acting on the trophic nerves of the skin, producing connective and muscle tissue hypertrophy, with consequent obstructive compression of the arterial, venous and (probably) lymphatic vessels, compression of the glands and fat lobules and a disappearance of the contents of the latter. In the second stage of the disease atrophic changes may take place in all the anatomical parts of the skin and the tissues directly beneath.

DIAGNOSIS.—The firm, hard, non-elastic, corpselike appearance of the skin with symmetry of involvement and without signs of inflammation will always remind one of scleroderma. Only one other disease closely resembles it, *sclerema neonatorum*, and this always begins in early infancy, months before the youngest known case of scleroderma originated. Moreover, in *sclerema* of the new born the surface is always cold. The rare affection known as *angioma pigmentosum et atrophicum* may be distinguished by its chief occurrence on the exposed portions of the body and its tumor-like growths.

PROGNOSIS.—Some cases of scleroderma tend to recover spontaneously, owing probably to the early abolition of the underlying neurosis. There may always be held out a hope of recovery before the advent of the atrophic stage, and this the more, the shorter the duration of a case. Even after moderate atrophic changes recovery may ensue in a slow or irregular way. No prediction can be made with any certainty as to time of restoration in any case. In the extreme atrophic state the prognosis is unfavorable as to recovery or long life.

TREATMENT.—Therapeutic efforts should be directed to a restoration of the equilibrium of the nerve functions which preside over the nutrition of the

skin by attention to the general hygiene of the individual and his or her environment. The diet should be plain but nutritious, the clothing warm and protective against alternations of temperature, the skin kept active and moderately stimulated with salt-water baths, or frictions with alcohol, bay rum, or simple oils or fats. The more nutrient oils like cod-liver, sweet oil, lanolin diluted with the latter, or sweet almond oil may be of additional advantage, especially when combined with general massage of the affected skin. The Turkish bath may replace other modes of bathing for those who can employ it, followed by inunctions of simple oil or fat. Sources of aggravation, such as cold and wet, should be avoided, and when practicable change to a mild, equable climate near the sea is advisable. The *high frequency currents* or galvanism over the spine may be beneficial. Of most importance is the selection of an internal remedy. If rightly chosen, there will be almost invariably some response to its administration. Pathologically and symptomatically *rhus tox.* will probably be most often indicated. See also *Arsen.*, *Bry.*, *Cannab. ind.*, *Graph.*, *Hydrocot.*, *Opium*.

CIRCUMSCRIBED SCLERODERMA

(*Morphæa*; *Addison's keloid*.)

Although clinically different and once believed to be a distinct disease from diffused scleroderma and termed *morphæa*, the latter is now generally recognized, at least anatomically, as a circumscribed variety of the former.

SYMPTOMS.—The lesions of this variety may appear without any general or local subjective sensations, and if situated on unobserved parts of the body may not attract the attention of the patient until accidentally seen. It is of rather more common occurrence than the diffused form, but still a comparatively rare affection. In shape the lesions may tend to show in patches, bands or in variations or combinations of these, the patch-like outline being the more common. In size they may vary from a small pea to three or four inches in diameter or even larger, and may be single or multiple. The color may vary from the dull white of an old cicatrix to a yellowish-white which has been likened to old ivory, commonly bordered by a narrow line consisting of aggregations of minute blood-vessels which may give to it a pinkish, violet or lilac tinge of color, and occasionally the dilated vessels run irregularly on to the body of the patch. The patches generally occur on one side, most often on the leg, arm, the trunk (especially on the breast), neck, head and face, particularly in the region supplied by the fifth nerve. Sometimes the distribution is like that of zoster along the line of the cutaneous nerves. To touch, the affected skin may feel like parchment or more like firm leather, according to its thickness, the ease with which it can be pinched up into folds, whether it is level with or slightly raised above the surrounding surface. These qualities may vary in different patches or even in the same patch. As the lesions develop the surface usually becomes smooth from obliteration of the normal lines and absence of hairs, dry, some-

times fissured and occasionally contracted into folds radiating toward the centre. They may remain unchanged for a long time, or new pearly-white atrophic points may continue to appear in the adjoining skin, enlarge, thicken and finally coalesce with the older patch. Other odd forms may occur in the neighborhood of circumscribed patches in the shape of straight or curved bands, streaks or ribbons. These may, however, be primary and characterize the attack. The linear lesions are more apt to be attached to the subcutaneous tissues, and hence may be sunken below the level of the surface and present a corresponding groove and ridge side by side. If not adherent to the parts beneath they may be elevated above the surface. On the limbs the bands may extend with the axis of an extremity for a considerable portion or even the whole length. On some parts of the face band-like formations are not extremely rare, and when terminating at the median line of the forehead the resemblance to a cicatrix or keloidal growth may be very apparent. *Variations* in the features of typical morphea may be seen in almost any direction. The centre of a patch instead of being white may be more or less pigmented in shades of yellow, brown, green or black. The vascular border may be absent in some cases, and in others the main portion of the lesion may be hyperæmic. Patches may develop quickly and pass through a rapid evolution; the more atrophic lesions may become adherent to the parts beneath as in the diffused form, and wasting of muscles may occur primarily or in turn, bringing the skin directly on to the periosteum in some cases; even exostosis has been noted and occasionally ulceration of the patches. There may be an absence of perspiration in the affected skin, without loss of sensibility or disturbance of sensation beyond moderate itching and burning, in some cases.

The *duration* of the disease may vary from one to ten years, and in its course may remain stationary when fully developed for a long time, or new lesions may continue to appear while others involute and leave no trace behind. It very rarely involves a large extent of the surface at any one time or more than one region. Seldom are the onset and course both acute, or the other extreme of chronicity reached. Neither is the general health apparently disturbed, though the disease with exceptional rarity may run a rapid course, and in later association with tuberculosis or some other constitutional or visceral affection prove fatal.

ETIOLOGY AND PATHOLOGY.—This disorder is more common in young adults and children, but may occur at any age. The neurotic temperament appears to be a predisposing factor, and nervous strain in the way of anxiety, worry or depressing surroundings contributing influences. Among exciting causes have been mentioned alternations of temperature, such as occur in variable climates, local frictions from collars, garters, traumatisms, irritations from medicinal applications, etc. After all, little is known about the positive causes outside of the implication of the nerve supply of the affected area resulting in defective innervation. The *pathological* process thereby induced seems to be a cell exudation around the vessels, narrowing their calibre

and proportionately diminishing the current of blood, sometimes leading to thrombosis or rupture and effusion. The morbid process may involve all or only a portion of the vessels of a part; when the blood supply is entirely cut off an atrophic lesion results, while from incomplete loss of circulation partial atrophy associated with increase of connective tissue results in a hypertrophic lesion. The consequent increase of blood pressure in the collateral capillaries at the periphery of the anæmic spot causes their dilatation and the resulting border of color before noted.

DIAGNOSIS.—The recognition of circumscribed scleroderma is rarely attended with any difficulty. The smooth, ivory-white patch with a narrow tinted border and situated on one side are distinctive of the ordinary type. Morphœa may be occasionally symmetrical, but it is always circumscribed as compared with diffused scleroderma. *Leucoderma* or *vitiligo* is an atrophy of pigment only, unattended with any change in the texture of the skin, unlike morphœa, and moreover the color is a dead white rather than the yellowish or ivory white of the latter. *Keloid* and the more hypertrophic band forms of circumscribed scleroderma have a resemblance, but keloid is denser, more vascular and elevated than the former, and frequently will show the claw-like prolongations into the sound skin at its more distant extremity. Whether some or all of the unilateral forms of atrophy of the skin supplied by the fifth nerve are identical with morphœa or not is undetermined and not important, as etiologically they are due to similar effects of innervation. Finally it may be remembered that cases of *mixed scleroderma* have been recorded, and though few in number, they serve to show the clinical as well as the pathological unity of the diffused and circumscribed forms. Either form may be primary in order of occurrence. In the single mixed case seen by myself the diffused type developed first and was followed in a few months by patches of morphœa.

PROGNOSIS.—This is good in the majority of cases for ultimate recovery, but the duration under treatment is uncertain. Some cases recover a normal condition of the skin in a few months, others may last for years. Crocker states that patched cases are more favorable than band cases.

TREATMENT.—This is practically based on the same principles as for the diffused form, modified according to the existing differences. The same general and individual hygiene and the same indicated remedies are the means to be relied upon to hasten involution. The *Röntgen rays* have been employed, but with indifferent success.

LEUCODERMA

Abnormally white skin may be a congenital defect, or it may be acquired as a direct result of atrophy of the normal coloring matter in the epidermis, which varies widely in different races and somewhat in different individuals of the same race. When absence of the pigment is congenital, it is known as *leucoderma congenitalis*, or *albinism*, and when acquired, it is called *leucoderma acquisitum*, or *vitiligo*.

ALBINISM

(*Albinismus*; *Congenital leucoderma*; *C. leukasmus*; *C. leukopathia*; *C. achromia*.)

DEFINITION.—A congenital absence of pigment in the skin and other tissues, universal or partial.

SYMPTOMS.—A child born with complete absence of visible pigmentation is known as an *albino*. The hair, iris and choroid are affected as well as the skin. The latter may be perfectly white or pinkish in color owing to the differences in thickness and transparency; the hair is fine, soft and silky, white or yellowish-white in color, and in one case observed by Folker it was red. Absence of coloring matter in the iris and choroid permits the color of the blood in these parts to show through, giving the former a pinkish tint, and the pupil a red appearance. In order to protect the abnormally exposed retina from excess of light the iris, eyeballs and lids are kept in a constant state of alternating motion when subject to ordinary rays. Albinos are usually congenitally weak, and grow up undersized and feeble physically and mentally; there are, however, some exceptions to this rule.

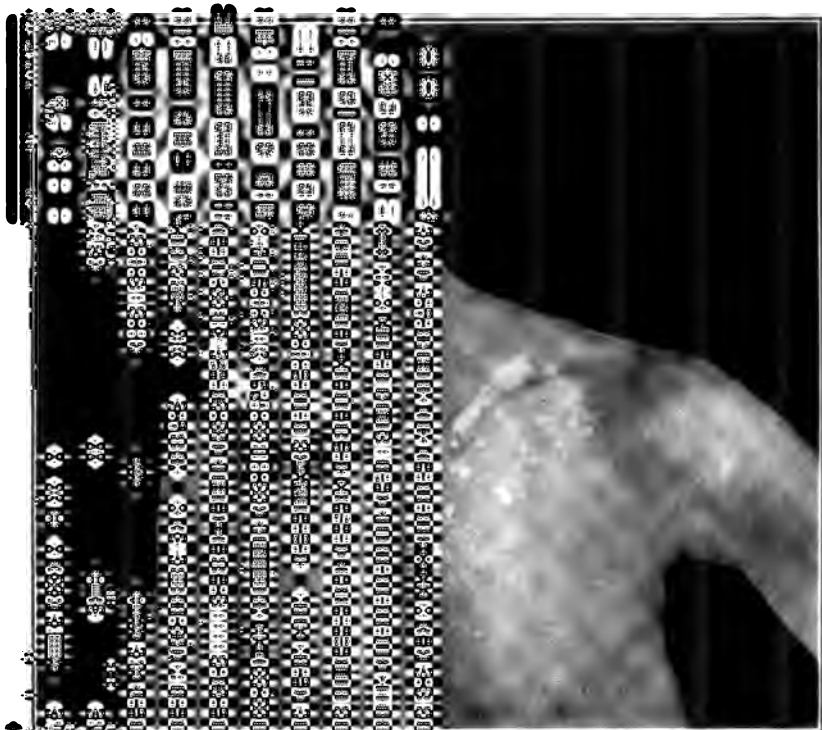
Partial albinism is much the most common, and like the universal form is more often seen in the dark races, especially in the negro at birth. The absence of pigment may occur in isolated, regular or irregular, roundish patches of a white or pinkish-white color, sharply defined by the normally pigmented surface or ill defined by a border of partially pigmented skin. This congenital defect is rarely seen in the white race, but the opposite congenital hypertrophy of pigment, the flat pigmentary mole, is not very rare in white people, and is alike persistent throughout life. Hairs growing from a patch of unpigmented skin are white. (Complete absence of pigment is not uncommon in animals and birds, as ferrets, rats, blackbirds, while partial albinism is very common among domestic and other fur-bearing animals.) Heredity is doubtless an important etiological factor. The condition is incurable.

VITILIGO

(*Leucoderma acquisitum*; *Acquired leukasmus*; *Leukopathia*; *Achromia*; *Pie-bald skin*.)

DEFINITION.—An acquired disorder in which the normal pigmentation of the skin progressively disappears from round or oval patches, leaving them white, smooth and sharply defined by a surrounding border of increased pigmentation.

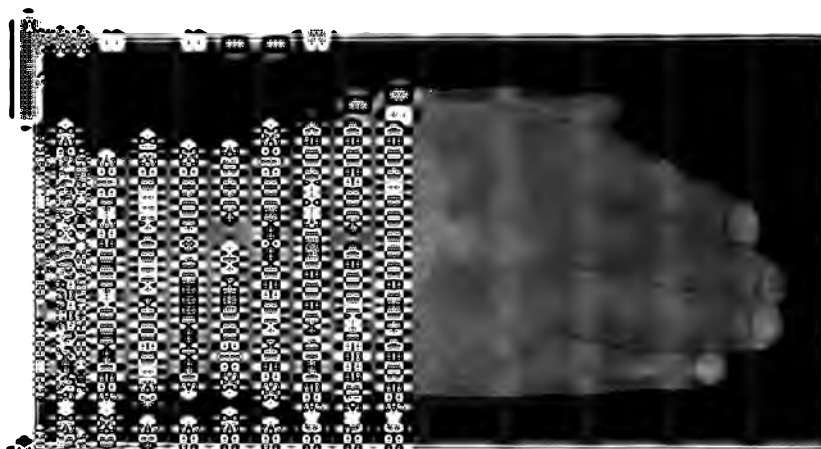
SYMPTOMS.—This affection is said to be quite common in tropical countries, but is rarer in temperate and colder latitudes. It is purely a disorder of pigmentation, the texture and functions of the affected skin remaining undisturbed, and it is probable that it first begins with a moderate increase of pig-



CODERMA

GO

...sixty, who has suffered from periodic
...to a ... he ... and ...
... size ... are ...
... ratio ...



EUCODERMA

VITILIGO

The woman who was subject to scrofula in bed areas of the skin on the back of hands ago. Several patches on the dorsal surfacerophy of pigment is quite pronounced at the al skin is fine in texture, thin and sensitive. in the affected parts. Cured under the pro- and infrequent local frictions with *capsicum*,

ment deposit, which in the majority of cases is only observed at the border after atrophy of pigment has occurred. This begins in small, milk-white, smooth, round or oval spots, which may enlarge symmetrically or irregularly to a less or greater degree. In colored people occasionally the absorption of pigment goes on progressively from one or many points until nearly all the surface becomes white, leaving here and there an island of normal-hued skin. When the patches unite, very irregular outlines of bleached skin may be found. Hairs in the affected portions become white, but retain their vigor and firm implantation in the follicles; the secretions and sensibility of the spots are also unchanged. Their edges are always convex and correspond to the concave border of the over-pigmented surface. The contrast is most apparent in the summer, owing to the tanning of the colored parts from exposure to sunlight, and occasionally with the return of winter the disorder becomes permanently less conspicuous. The progress of the whitening process is always slow, consuming years when it extends over large areas, and when more than half of the surface is involved in map-like distribution of white and dark shades of color, it may appear as though the latter were the abnormal portions of the skin. Rarely the loss of pigment may become universal and a spontaneous cure appear to be effected, but the normal pigment is not restored. The disease may start on any part of the surface, but is probably most often seen upon the back of the hands, neck, face, scalp and genito-crural regions; one spot may form at a time, and after an indefinite interval additional spots appear on other parts. The piebald look is intensified by the small size and the greater number of patches. The general health is unaffected directly by this disorder, though there may be associated disturbances of the nerve functions.

ETIOLOGY AND PATHOLOGY.—No actual cause of vitiligo is known. Hereditary tendency has been noted in so few instances as to be of little or no significance. It affects equally both sexes, and appears primarily most often in early and middle adult life, but is not limited to this period. It has followed after severe sickness in many instances, such as malarial and eruptive fevers; and has often occurred in association with neurotic forms of disease, such as migraine, alopecia areata, morphea, Addison's disease, Graves' disease, etc. Sometimes exposure to heat of the sun or to cold has seemed to stand in causal relation to attacks, and it has been observed to begin after injuries to the surface tissues. The various etiological factors have little in common except as they are induced by or lead to depression or derangement of the nervous system. Therein rests, together with the change in the skin (atrophy of pigment), about the only grounds for the assumption that vitiligo is *pathologically* a tropho-neurosis. Leloir and Chabins have reported atrophy of the subdermal nerves in areas of vitiligo. The deep rete cells of the affected areas lack the normal pigment granules, while those at the borders are abundantly supplied.

DIAGNOSIS.—The white patches of otherwise unchanged skin with a surrounding border of deepened pigmentation, usual symmetrical occurrence and history of development will always distinguish vitiligo from all other cutaneous

affections. *Macular leprosy* in its later stages when the skin has become pale might be mistaken for vitiligo; but unlike leprosy, the spots of vitiligo are not anæsthetic or structurally changed, and the general health is unaffected by the disease. When the loss of pigment has become general on certain parts or over the whole surface, the islands of color might be confounded with *chloasma*. Here the usual convex outline of whitened skin would distinguish vitiligo from the concave line of lighter surface surrounding a patch of *chloasma*, and a comparative inspection of the surrounding skin would demonstrate its abnormal whiteness in a case of vitiligo. *Morphæa* can always be differentiated from vitiligo by the change of texture of the skin in a lesion of the former and its other features.

PROGNOSIS.—The tendency of this disorder is to persist and increase with age. Rarely it ceases spontaneously and occasionally from treatment.

TREATMENT.—Chief reliance is to be placed on the administration of an indicated drug and hygienic measures, if needed, to improve the general and local innervation. Frictions of the affected surface sufficient to produce a determination of blood to the part I have found beneficial in several cases. One of my patients with a pronounced form of the disease on the back of the hands and forearms regained the normal color in the whitened patches while using once daily the following local application:

R. Tr. cantharides 3 4.
 Tr. benzoin 3 1.
 Alcoholis,
 Aquæ rosæ aa 3 2. M.

Satisfactory as well as negative results have followed the use of hypodermic injections of *pilocarpine*, of the application of pure *carbolic acid* (Savill), of *phototherapy* (Montgomery), of the *high frequency currents* and of *radiotherapy*. The editor believes that the last method, that of the *Röntgen* or X-rays, is the most worthy of mention, and that *radium* in the quantity and quality now obtainable is absolutely worthless (from observation on six cases).

The employment locally of corrosive sublimate, acids or caustic alkalies to remove the excess of pigment around the patches of vitiligo, and thus lessen the disfiguring contrast of color, have been recommended, but are of doubtful utility. On exposed parts of the skin temporary relief from the disfigurement can be obtained by lightly staining the patches with walnut juice or some cosmetic preparation. Any indicated drug may be employed. *Arsen.*, *Sul.*, *Nit. acid* and *Zinc phos.* have proved beneficial.

ATROPHIA CUTIS

Like other organs of the body, the skin may undergo atrophic changes, idiopathic or symptomatic in character, general or limited in extent, gradual or rapid in development. Often, atrophy of the skin follows other pathological relations, but it may be coexistent with them.

ATROPHIA SENILIS

(*Senile atrophy of the skin; Atrophoderma senile.*)

The cutaneous degeneration peculiar to old age is macular, in its simplest form, pea- to bean-size and brown in color. These lesions are often found on the face, dorsum of the hands, genitalia and legs. Generally speaking, the skin may assume a dull brown or yellowish tint, become wrinkled and dry with slight scaling; the hairs atrophy and are of the lanugo-type; verruca of all types and sizes and telangiectases may appear.

The PATHOLOGICAL changes present in quantitative atrophy consist of a marked diminution of the fat-cells in all parts of the derma, a thinning of corium and epidermis, an increased pigmentation in the rete, a shortening of the hair follicles, dilatation of the glands and a disappearance of some blood-vessels while others become dilated. Degenerative atrophy may be fatty, amyloid, vitreous, granular, etc. in character.

PROGNOSIS AND TREATMENT.—Having once been established senile atrophy is *incurable*, but protection from all harmful influences, and physiological living as regards both food and hygiene, will, if taken in time, often prevent or postpone its development. Massage, galvanism, the high frequency currents, bran and salt baths, inunctions of plain oil, and wholesome food are advised. All warty growths must be watched and protected, else they may become malignant in character. The indicated remedy in all cases is most important, and should be prescribed on the totality of symptoms.

ATROPHIA MACULOSA ET STRIATA

(*Atrophoderma.*)

Partial atrophy of the skin results from the relaxation of the normal tension following stretching or tearing of the elastic fibres of the derma. The released blood-vessels dilate for a time, producing a dull reddish or faint purplish discoloration in the affected area. Then follows atrophy with loss of the papillary layer of the corium and diminution of the number of the vessels and glandular appendages. The hair may be absent or scanty. Such a condition may be *idiopathic* or *symptomatic*. It may occur from traumatism, as in the permanent marks left by a lash with a whip capable of injuring the elastic tissues beneath the intact epidermis; or from distension of the skin by ascites, anasarca, pregnancy (*lineæ albicantes*), tumors, excessive deposits of fat, etc. Accompanied by fatty, lardaceous or waxy degeneration of the cutaneous elements, partial atrophy is a sequel of syphilis, lepra, and many other diseases of the skin. From its usual occurrence in spots or lines this class of atrophy of the skin gains its title "maculosa et striata." The lesions are smooth, glistening, scar-like, thin and depressed or grooved, with a peculiar mother-of-pearl lustre. The *lines*, an inch or more long and an eighth to one-quarter of an

inch in breadth, are usually parallel with an oblique direction often following the natural lines of the skin. They may be nearly or quite on a line with the axis of the body on the trunk, but often at right angles on extremities. They are found over the distended part, or often on the hips, buttocks and thighs of adults, chiefly women. They may occur after severe sickness, such as typhoid fever. The *macules* are more rare, and are isolated, round or oval, varying in size from a pin head to a finger nail. They bear a coarse resemblance to a vaccine cicatrix. All the lesions lack subjective sensations, and may be more or less anæsthetic. Rare cases of the idiopathic forms are described, in which large macules are found about the ankles of women with menstrual derangements, the cicatriform condition following a brown pigmentation. In others there is a preliminary development of capillaries. A pigmented area sometimes surrounds the atrophic patch.

ETIOLOGY.—It is apparent from the description of this form of cutaneous atrophy that it may be due in part to varying causes, which are obvious in the symptomatic types, but the idiopathic form at least can only be explained on the ground of its tropho-neurotic pathology, with malnutrition and circulatory disturbances as predisposing factors.

DIAGNOSIS.—The idiopathic form must be distinguished from the atrophic lesions that may be left by scleroderma, syphilis, etc. This can be done by careful investigation of the history of each case.

TREATMENT.—See indications for *Graphites*, *Opium* and *Sulphur*. Prophylaxis is outlined under atrophica senilis.

KRAUROSIS VULVÆ

Breisky, Heitzmann and others have reported a peculiar rare atrophic condition wherein the labia minora, preputium clitoridis and vestibulum shrink and become shriveled. In many instances, a congestive period with itching, burning and hyperæsthesia precedes the atrophic state. Women of all ages have this condition irrespective of coitus or pregnancy. The **ETIOLOGY** is obscure and the disease is chronic in its course.

TREATMENT.—This should be directed towards removal of the cause, and a careful hunt will usually reveal some abnormality of the nervous system that needs treatment. Locally *curetting* and *radiotherapy* might be indicated in extreme instances, but the greatest dependence must be placed on the *indicated drug* plus the proper hygiene and diet.

GLOSSY SKIN

(*Atrophoderma neuritica*.)

Glossy skin is a trophic disorder of the skin, seen especially in the "glossy fingers" described by the neurologists. One or more fingers become tapering, smooth, hairless, unwrinkled, glossy like a highly polished scar, and in color pink and ruddy, or blotched as with highly permanent chilblains. The nails

curve inward, and the epidermis under the free edge is frequently thickened. After some time the nails drop off. The skin is delicate and easily inflamed, excoriated or fissured. There are associated severe burning pains and other abnormal local sensations.

ETIOLOGY.—The condition results from local injury to the nerve trunk supplying the affected fingers, or from systemic disease causing neuritis in the same location. It is noticed in non-tubercular leprosy, gout and rheumatism. Impaired circulation is a predisposing cause, and exposure to severe cold may produce it. There is usually at some time in the course of the disease a severe neuralgia. Most cases are tropho-neurotic in character.

TREATMENT.—This should be directed towards the removal of any associated cause and the restoration of innervation. In the meantime the parts should be protected from cold and all irritations. Gentle massage and the high frequency currents may be used to advantage.

PERFORATING ULCER OF THE FOOT

(*Malum perforans pedis.*)

This is a tropho-neurosis found usually on the foot, but occasionally on the hand, characterized by the formation of a sinus with a tendency to slow but deep and destructive ulceration, communicating with the surface by a small opening. It occurs after traumatism or undue pressure in a limb in which the nerve supply is interfered with. It thus follows spinal injury, congelation, posterior spinal sclerosis, syphilis, anæsthetic leprosy, and in animals from section of the sciatic nerve.

A large single or multiple corn is first formed upon an exposed location, such as the lower aspect of the metatarso-phalangeal joint of the first or fifth toe. Beneath the corn a sinus develops which ulcerates its way slowly inward until it involves soft parts and bones. The external opening is by the side of the original corn, and is sometimes surrounded with granulations; usually it is a small opening, but later, by continued pressure in walking, the epidermis becomes thickened into a large whitish-yellow mass surrounding the orifice.

Attending the ulcerative changes are other lesions typical of tropho-neurotic affections. The epidermis becomes thickened, the nails altered, and the extremity and dorsum of the foot gain profuse development of hair. There may be pigmentation, erythema or eczema, and increased or diminished perspiration. Anæsthesia is most common in and around the ulcer, while neuralgic and rheumatic pains in the extremity are frequent. Variations occur in which either the ulcerative or neurotic symptoms are the more prominent. Hyde has reported similar cases involving both feet and hands.

PATHOLOGY.—This tropho-neurosis may be due to injury to the terminal nerve, to the nerve-trunk or to the nerve centre. Gasquel reports sixty-nine central and eight peripheral nerve lesions among the ninety-one cases collected by him. "Destruction of the myelin and axis-cylinder of twigs of nerves supplying the affected part" has been noted.

DIAGNOSIS AND PROGNOSIS.—When making a diagnosis the essential points of Maduro foot, tuberculosis and callositas should be considered, although the neurotic phenomena seen in perforation disease of the foot should make the distinction easy. Prognosis is doubtful.

TREATMENT.—Complete rest and curettage of all diseased tissue is usually necessary, but the disease will often reappear as soon as the patient walks. Amputation, to be of any service, must be well removed from the diseased area, through healthy tissue. *Arsenicum alb.*, and *Populus cand.* may be indicated internally.

TROPHIC ULCERS

Ulcers due to direct injury to nerves or to reflex irritation are considered to be trophic lesions. They spread serpigiously, and are preceded and accompanied by neuralgic pain in the distribution of some particular nerve. They may form under vesicles or bullæ, leaving indelible, depressed or keloid scars. Such ulcers are sometimes gangrenous. In origin such cases would seem related to dermatitis repens. *Conium* might prove a remedy in some instances.

SYMMETRICAL GANGRENE OF THE EXTREMITIES

(*Raynaud's disease; Local asphyxia.*)

This is a rare affection and results from a spasm of the arterioles, causing venous stasis, and originates in some central or peripheral nervous disorder. Besides the extremities, the nose, ears, brows and other locations exposed to extremes of heat and cold may be attacked.

The first indications of trouble are the signs of passive congestion, numbness, loss of sensibility, and pallor (local asphyxia, "dead fingers"). Then follow painful sensations, pricking, crawling, stinging or lancinating. If not arrested in this stage of cyanosis the process continues to superficial gangrene. The skin becomes cold, firm and black, and the epidermis raised by serum in bullæ, which give way to persistent ulcers. A line of demarcation is soon formed and the necrosed parts are sloughed off. In mild cases the sloughing is superficial and recovery occurs, leaving the fingers thinned and covered with small white, tough cicatrices. Or the tissues may regain their tone without ulceration, or the nails alone may fall.

ETIOLOGY AND PATHOLOGY.—The causes of Raynaud's disease may affect either sex and at any age, but more often men, and chiefly those in whom circulation is weak, with an unstable nervous system. Malaria, gout, diabetes, syphilis and tuberculosis are considered to be predisposing diseases. It often follows directly from exposure to cold, or the acute exanthemata, diphtheria, scarlet fever, etc. Pathologically it is essentially a nutritive disturbance

(tropho-neurosis) of the skin, the exact nature of which is not known. Beck has demonstrated, by means of the Röntgen rays, atrophic change in the bones of two cases.

The DIAGNOSIS will be readily made when there is a history of local asphyxia, and the location of the gangrenous process is found to be symmetrical, and on the extreme points of the body.

The PROGNOSIS is often grave when the process is extensive and the general constitution poor. Disfigurement or mutilation is common, and recurrence is frequent. Death from the condition is rare.

TREATMENT consists in efforts to improve general and local nutrition, remove constitutional dyscrasia and neuropathic conditions by a nourishing diet, hygienic living, galvanism of the spine, and affected parts (high frequency currents have been used for the same purpose), stimulation and friction (if treated at an early stage) with alcoholic, camphorated or oily lotions, and administration of the indicated drug. See *Secale*.

AINHUM

(*Banko-kerende; Sukha pokla; Quigila.*)

A singular disease found among the original inhabitants of Brazil, India and Africa is described by this native term, meaning "to saw." It is a degeneration of the smaller digits, usually the little toe, following an annular constriction at its base, accompanied by increase in size of the member, and leading to spontaneous amputation. The constriction develops slowly from a semicircular groove at the root of the digit to a deep, narrow furrow encircling the toe, which strangulates and eventually detaches it without ulceration. Meanwhile slow degeneration occurs in all the elements of the toe, bones, tendons, vessels, etc., the toe increasing to two or three times its size, becoming globular or oval in shape. The process is very slow, extending from five to ten years or more. It is never congenital, and was formerly supposed to only occur in adults, but cases have been observed in children. Most cases end in the removal of the affected members.

ETIOLOGY.—Male adults of the African race are the commonest sufferers. Trauma from self-mutilation or from the wearing of rings, lepra, scleroderma and heredity have all been claimed as causal factors, but it would seem that to a tropho-neurosis from changes in the nerve centres, trunks or peripheral endings, must be assigned the chief causal agent.

PATHOLOGY.—The epidermis becomes thickened and covers the constricting ring, which is composed of fibrous tissue. The subcutaneous fatty tissue is increased, and the constricted bones undergo fibroid changes with enlargement of the medullary spaces. Pathological investigations would seem to indicate that some cases of ainhum were similar to, if not identical with, scleroderma annulare.

DIAGNOSIS must be made from *lepra mutilans*, symmetrical gangrene and from those diseases of the nerve centres where fall of the digits may be occasionally noted.

TREATMENT.—Incision of the constricting ring at an early stage is said to relieve the disease. Later, amputation of the toe, either where the constriction occurs or at the proximal joint toward the limb, is a proper measure of treatment. *Secale* may be a good remedy in the early stage.

SYRINGOMYELIA

(*Morvan's disease; Myelosyringosis; Analgesic paralysis with whitlow.*)

This disease of the central nervous system is usually accompanied by tropho-neurotic skin lesions. There are found ulcers, fissures, "glossiness," hyperidrosis, vesicles, bullæ, whitlows leading to necrosis with neuralgic pains and disorders of sensation. Identical or closely allied with it is Morvan's disease, another affection of the cord, characterized particularly by the formation of whitlows and necrosis of the phalanges. A deformity of the hand resembling the *main en griffe* of anæsthetic leprosy may be produced. It is believed by some to be an attenuated form of leprosy, but changes occur in the latter which are not found in the former, and pathologically they are probably unlike.

ETIOLOGY is obscure. It is usually observed after puberty and more often in men than in women. Trauma, malaria and rheumatism have been mentioned as possible causes.

PATHOLOGY.—Cavities are found in the central canal, filled with fluid, supposed to be due to absorption of gliomata. Neuritis and thickening of the neurilemma of the affected nerves, and sclerotic changes in the posterior cornua and columns of the cord, have been noted.

DIAGNOSTIC signs are said to be the limitation to the upper extremities, the abolition of temperature and pain sensation, the preservation of tactile sensation, and the history or presence of some of the skin lesions above named. Just how the disease could be confounded with scleroderma does not appear; certainly the differences are well marked. The same may be said of anæsthetic leprosy and glossy fingers.

PROGNOSIS is doubtful, because the disease is chronic in its course and may persist for twenty years or more.

TREATMENT.—A proper hygiene and diet are most essential. Surgical interference may be needed when medical means fail to relieve or cure.

CLASS V.—PARASITIC AFFECTIONS

This interesting group of cutaneous diseases includes widely different conditions when viewed from an anatomico-pathological standpoint, or even from their efficient behavior. They have, however, one feature in common, in that their efficient cause is an invasion of organisms on or into the tissues of the skin, from which they obtain nutriment and multiply at the expense of their involuntary-host, and hence are parasitic. From this etiological relationship naturally follows, within certain limits, a correlated therapeutic principle which further justifies this classification.

Parasitic diseases of the skin may be divided into (A) those due to animal organisms, and (B) those due to vegetable organisms.

A. ANIMAL PARASITIC DISEASES

SCABIES (ITCH)

DEFINITION.—An animal parasitic disease due to the burrowing in the epidermis of the female acarus, resulting in multiple irritative lesions, which are aggravated by scratching.

Scabies is one of the common diseases of the skin, occurring in from one to eight per cent. of all cutaneous affections, being sometimes more and again less prevalent.

SYMPTOMS.—The disease begins with the lodgment on the skin of the pregnant female itch mite, who seeks a thinner or more fixed part of the skin, and there proceeds, by tilting up her rear and forcing her head between the cells of the epidermis, to tunnel into the latter until completely buried within its substance. This much is said to be accomplished within half an hour. Soon after she deposits an egg, burrows further on, laying each day one or two or more eggs, until about fifty have been successfully deposited in a burrow inclining inward in an irregular, tortuous or rarely straight line. The length of the coniculus or burrow is usually from one-eighth to three-eighths of an inch, but may be much longer. On the surface the burrow shows in cleanly persons as white or delicately gray dotted lines, but more often they are brownish or black from the entanglement of dirt in the slightly roughened epidermis. On section and microscopic examination the burrows are found to contain besides the mother mite, eggs, egg-shells, larvæ, nymphæ, and dark specks supposed to be fæces. During the passage through the epidermis the mite may sometimes be seen at the end of the dotted line as a small white speck, and then may be removed on the point of a needle. Left to her course the deposit of ova is completed in about two months and she dies. Long before this some of the earlier laid eggs have hatched out (estimated to occur

into larvæ within a week, and into adult acari within three weeks), and have escaped on to the surface either by the natural shedding of the epidermis or by ruptures in the roof of the burrow. The surviving female portion of the progeny become impregnated and in turn seek the seclusion of the epidermis to deposit ova and to die. Meanwhile the male acarus is supposed to roam over the surface, hide under or become entangled in the scales or crusts, with no share in the cutaneous business except that of impregnation. The work of the female acarus briefly outlined produces in proportion to the sensitiveness of the individual skin early consecutive lesions of papules, vesicles, pustules, wheals, bullæ, crusts, which may be further added to or aggravated by excoriations from scratching in attempts to alleviate the attendant itching. Pruritus is nearly constant, not always limited to the affected portion of the skin, and varies in degree in different persons, but is invariably worse at night, the warmth of the bed especially stimulating the activity of the parasite. An advanced case of scabies may show no signs of the pathognomonic burrows, they having been obliterated or obscured by the polymorphous lesions common to types of eczema. The eruption tends to occur, however, in isolated lesions rather than in groups as in eczema, and the localization also differs somewhat from the latter. Thus the sites of predilection are the hands, especially the sides of the fingers and inter-digital folds, and more protected parts of the surface which are habitually or easily touched with the hands, such as the wrists, elbows, breasts, axilla, umbilicus, penis, buttocks and thighs. Infants at the breast may contract the disease in the act of nursing, and exhibit the burrows on the face, and in children the toes as well as the soles and palms may become infected. Pustular lesions are more common and extensive also with scabies occurring in children, owing to the less resistance of the skin to exciters of inflammation at this early age. In rare instances when all methods of cleanliness are avoided or from pathological changes in the skin (anæsthesia) the usual sensations are not felt, the acari may multiply in large numbers, become widely distributed, and the lesions assume aggravated pustular forms, going on to the formation of furuncles, cellulitis and thick crusts, the latter swarming with parasites. This variety has been called "Norwegian itch" or *scabies crustosa* and has been observed in its greatest intensity in neglected cases occurring in lepers.

ETIOLOGY AND PATHOLOGY.—The sole efficient cause of scabies is the deposit of ova between the cells of the epidermis by an impregnated acarus. Favoring conditions are uncleanness of the skin, intimate and prolonged contact of one person with another as in infants nursing at the breast or two persons sleeping together in one bed. Handling of animals affected with the disorder, such as cats, dogs, horses, camels, may be the method of origin; but the colony thus started rarely persists or thrives. The same may be said of the human acarus when transferred to the lower animals. It is doubtful if the parasites are ever transferred by mere transient contact or through the medium of articles worn or handled. No age, sex or station is exempt, though it is seldom seen in the cleanly, and is most common before the age of thirty.

concerning the nature of the parasite, in artificial dermatitis therefrom. The nature of the disease can be just discerned by the small, roundish body, which mounted in glycerine is found to be provided with eight legs, and to each of the legs is attached a sucker, and to each of the

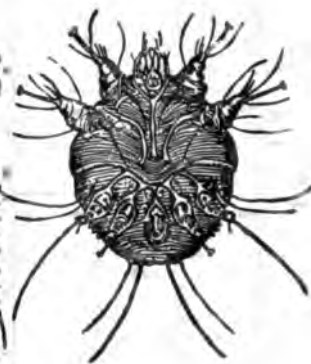


FIG. 78.—ACARUS SCABIEI (male).
(Diagrammatic after Duhring.)

few short bristles on the back and on the legs. A small opening, called the sternal opening, may be seen in the centre or posterior end of the body. The male acarus is about two-thirds the size of the female. The genital organs, and for the purpose of copulation, the posterior pair of legs.

The sternal opening can be found in a case of scabies. The use of a magnifying glass is necessary for the burrow. Dark lines or dots are often seen for the acarus lesion, but wiping the skin with a cloth will remove the former and not affect the presence of the acarus is still alive and shows at the

white mark, the epidermal burrow. The male acarus is about two-thirds the size of the female. The genital organs, and for the purpose of copulation, the posterior pair of legs. The sternal opening can be found in a case of scabies. The use of a magnifying glass is necessary for the burrow. Dark lines or dots are often seen for the acarus lesion, but wiping the skin with a cloth will remove the former and not affect the presence of the acarus is still alive and shows at the

scabies and greatly complicate its clinical expression. In all doubtful cases a few days' antiparasitic treatment will cure or greatly improve scabies or an associated impetigo, but would leave the more chronic affections unaffected or aggravated.

PROGNOSIS.—This is always good for uncomplicated cases which submit to proper treatment and take precautions against reinfection.

TREATMENT.—Causal or antiparasitic methods are always indicated. These should be adapted in strength and other qualities to each individual case. Sulphur ointment for every case of scabies is injudicious and unsatisfactory in results as it is empirical in art. The first object of treatment is to thoroughly cleanse the surface and remove the outer layers of the epidermis so as to expose and break up the burrows which contain the mature, maturing or embryo acari. This may be accomplished by frictions with soap in a hot bath, if the disease be general, or with local hot water and soap bathing, if the disease is local. For thin and delicate skins any ordinary soap will do; for the less sensitive stronger soaps may be employed, while for the thick skinned and dirty, soft soap or diluted *sapo veridis* is the most serviceable. The same discretion should be used as regards friction, employing coarse toweling, a flesh brush, a nail or horse-hair scrubbing brush as the case may warrant. These preparatory steps should be thorough without irritating the skin. Immediately after the scrubbing process the affected skin should have applied to it some antiparasitic, which may vary with the condition of the skin, the age and circumstances of its owner. In public practice *sulphur* ointment is the most efficient and convenient application. It may be ordered in the strength of a half to three drachms to an ounce of fresh lard; one to eight is an average and effective strength. This should be applied thoroughly once a day (preferably at night) for two or three successive days, and followed at the end of this time by a warm bath, when, with a change to fresh underclothing and bed linen if possible, the cure is usually complete. If any irritation of the skin remain or result from treatment, simple vaseline may be applied as needed, and if any signs of the disease remain after a few days the sulphur applications may be repeated. When the preliminary bath cannot or will not be taken, the above anointing with sulphur may need to be somewhat stronger and longer continued, three to seven days. In generalized scabies the patient may be kept in bed for forty-eight hours if practicable; most cases may be allowed to go about as usual, not changing their clothing until the final bath is taken. In place of the offensive ointment, sulphur powder may be rubbed on to the skin, and a half teaspoonful placed between the sheets of the bed at night as suggested by Shirwell.

Naphthol is an excellent substitute for sulphur, and is especially to be recommended for use in private practice in the proportion of twenty to sixty grains to an ounce of lard.

The following has been found efficient in an average case:

R.	B-Naphthol pulv.....	gr. 50.
	Adipis rect.....	℥ 1½.
	Aq. rosæ.....	gtt. 25. M.

This has the advantages of being without color or unpleasant odor, and seldom excites a dermatitis or aggravates an associated eczema as sulphur is very liable to do. The details of application are the same. In patients with thick and inactive skins *sapo veridis* may be added in one to four of the above as in Kaposi's formula. I have never found it needed when the directions for bathing were carried out. The possibility of naphthol affecting the kidneys when it is too freely used on inflamed skin should always be borne in mind and the urine watched.

For scabies occurring in women and children with delicate skins *styrax* mixed in ointment or oil is an agreeable and unirritating application.

R. *Styracis liquidi*..... 3 1.
Adipis..... 3 2. M.

Olive oil may be substituted for the lard in the above, and *balsam of Peru* in small proportion (twenty drops to the ounce) is sometimes added. *Styrax* used too freely shares the same objection as naphthol, that it may irritate the kidneys. A resinous substance may be sometimes found in the urine from its over use. *Carbolic acid*, *balsam of tolu*, *staphysagria*, *tar*, *oils of cinnamon*, *rosemary*, *mint* and *cloves* and *petroleum* have been used, but present no advantages, unless a strong odor be considered beneficial, over the preparations mentioned.

In institutions possessing the conveniences, quick cures of scabies may be made by the so-called French method as long practiced at the St. Louis Hospital in Paris. There the scabies patient is first scrubbed with green soap and water for half an hour, then given a hot bath of an hour's duration, after which follows a thorough rubbing all over the body with an ointment composed of sulphur two parts, potass. carbonat. one part and lard twelve parts; the patient resumes his clothing without removing the ointment, and is then discharged cured. The one treatment is effective in nearly all cases. Few American skins could stand this heroic method without a resulting dermatitis liable to give more suffering than the original disorder. It may be adapted, however, to occasional "tough" examples of the disease. To prevent a relapse of scabies patients should be told that all members of the family exhibiting similar eruptions must be treated at the same time. At the end of treatment the bed linen and clothing worn next to the skin should be put in boiling water, baked or disinfected if practicable or convenient. As, however, the *acarus*, larvæ or eggs do not long retain their vitality away from living tissue, laying the clothing aside for a few days is effective in the way of prevention. In Vienna it is said no attempt is made to sterilize the clothing of scabies patients, with the result that only one per cent. of cases relapse. In all cases where indications are found for a drug remedy it should be administered to increase the resistance of the skin, but no one who cares for the golden rule would think of waiting on that alone to effect a cure. Among remedies see *Cal. sulph.*, *Merc.*, *Psor.* and *Sulphur*.

PEDICULOSIS

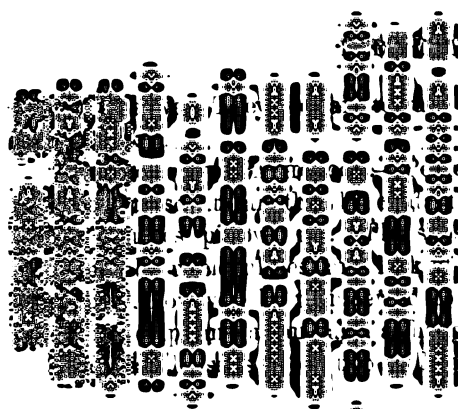
(*Phthiriasis; Lousiness.*)

As the acari represent the most common form of *dermatozoa*, parasites living for a time in the skin, so pediculi represent the most common kind of *epizoa*, parasites which roam on the skin for a time to obtain nourishment. They are wingless insects provided with eyes and with biting, sucking and masticating parts. In obtaining food they make an opening in the skin with mandibles, and then insert the head therein and suck blood from the papillæ. The pediculi which infest the human skin live near by in the clothes or hair, and consist of three varieties, which, according to their location, are called (A) *pediculus capitis*, (B) *pediculus corporis* and (C) *pediculus pubis*.

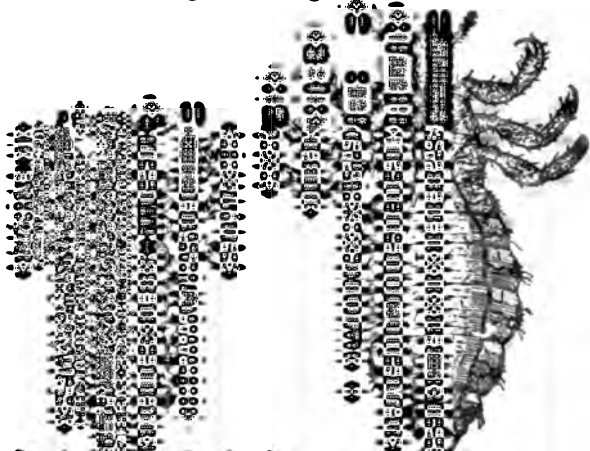
A. PEDICULUS CAPITIS

(*Head louse.*)

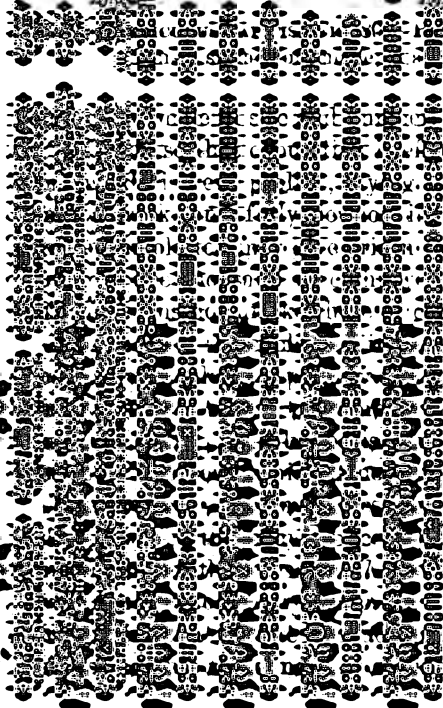
Without producing any direct lesion, the presence of this insect usually excites so much itching that the efforts to relieve it by scratching soon result in excoriations, which may become eczematous, or infected with pus cocci and become transformed in neglected cases into impetigo contagiosa lesions, furuncles and small abscesses. The favorite seat of the pediculi is the occipital region, where the hair is thickest, and here the most marked lesions are found, often consisting of crusting pustular formations of small and large size. In exceptionally dirty and neglected cases the hair may become matted together with the exudation of serum, pus, mingling of dust, scales, scabs and other *débris*, and swarming with pediculi, constituting the offensive mass known as *plica polonica*. Pediculi of the head may invade any and all parts of the hairy scalp, but never go beyond its limits, though occasionally the skin is erythematous and eczematous outside the hair border, especially down upon the neck. In cases of long duration the glands of the neck may be swollen and the neighboring superficial lymph glands may become enlarged, tender and inflamed even to suppuration. In the healthy and vigorous a few pediculi on the scalp may give rise to little disturbance for a time beyond a slight itching, the conditions not seeming favorable to their activity and propagation. While it may be difficult to find the live pediculi in these cases, their eggs may be seen more readily than when resulting lesions have been added. The ova or "nits" will be found as minute, whitish bodies firmly glued to one side of the hair. When the pediculi are few in number usually only one egg is found upon a hair, but as they multiply several may be seen at short intervals on one shaft. In all cases of pediculosis the nits can be found on careful search, and generally one louse or more will be discovered. The latter appear on the hair or scalp as small, grayish bodies to the naked eye, which on being disturbed are



in color somewhat with the color of the
 erulosis of the scalp is always conveyed
 or through the medium of hats, caps,
 sequent multiplication of the pediculus
 habitual combing or brushing the hair.
 and propagate on the clean and well-
 gh most often an affliction of childhood.
 etres long by one wide, the female out-



PEDICULUS CORPORIS. FIG. 81.—PEDICULUS PUBIS.
 at 25; diagrammatic, after Dühring.)



The sexual organ of the male is situated
 ted by the female sitting upon the male.
 wards of fifty eggs; these hatch out in
 about a week more. A single pregnant
 a numerous family in a few weeks (esti-
 s), which by their presence give rise to
 emia and other pustular affections.

The sexual organ of the male is situated
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 a numerous family in a few weeks (esti-
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 emia and other pustular affections.

dren the hair may be cut close, as thus many of the nits are removed and a cure expedited. It is not necessary to sacrifice the hair, especially the long hair of women, as antiparasitics and cleansing will certainly effect a cure. When the odor is unobjectionable the use of carbolic ointment, as recommended by Greenough, is efficient:

R. Acidi carbolici.....qrs. 15-25
Ung. petrolii..... $\frac{3}{4}$ 1. M.

Applied to the affected regions once or twice daily, this kills the pediculi and sterilizes the nits and other incidental organisms. Likewise one drachm of the powdered seeds of *staphysagria* to an ounce of vaseline, or the officinal ointment of *ammoniated-mercury* can be used for the same purpose, but where there are open sores the latter should be diluted after one or two applications. *Naphthol* in the same form as suggested for scabies will be serviceable in milder cases, or following stronger applications in the more severe. Whatever oily application is employed, the scalp should be thoroughly cleansed every day or two with soap and water or borax and water, and to remove the dead nits ordinary *vinegar* or diluted *acetic acid* may be used. Either of the latter, with after-combing and brushing of the hair, will soon rid the scalp of all remnants of the pediculi and their products. Antiparasitic soaps are convenient for use either alone or after other applications to prevent relapse. *Corrosive sublimate* soap one-half per cent. or *creolin* soap ten per cent. I have found efficient in recent cases. The whole scalp is well rubbed with a lather of the soap, then cleansed with warm water, dried and sometimes a little white vaseline or olive oil applied to the more tender parts to prevent undue irritation. This can be repeated daily as long as needed.

B. PEDICULUS CORPORIS

(*Pediculus vestimenti; Phthiriasis; Body louse; Clothes louse.*)

This is the largest of the three varieties and dwells in the clothing, only foraging on the skin to obtain food. They seek the folds or seams of the clothes most constantly in contact with the skin, and thus are found generally hiding in the garments about the shoulders, neck, thighs and waist. They are seldom found on the skin, but occasionally may be caught on the surface as the patient suddenly removes the underclothing, when one or two may be seen hurrying to find some place of concealment. From their habit of seeking cover quickly they do not wander far on the skin, and their lesions are often limited to the regions above mentioned. When hungry they leave their lodgings, and as Swammerdam originally pointed out (since verified by Schjödte), they insert into the skin a haustellum through which the blood is sucked up to the head of the parasite. As the sucking organ is withdrawn from the skin blood wells up through the aperture, making a minute hemorrhagic speck on the surface. The injury inflicted by the pediculus, with possibly the injection of

some irritating substance, produces a wheal-like lesion around the blood-marked wound. This is attended with intense itching leading to energetic scratching, in which the wheals are torn through with the nails, leaving a rather broad, deep and bloody excoriation. The pruritic sensations are not confined wholly to the injured spot, so that other and less pronounced scratch marks may be seen in the same or other regions. As the deeper excoriations disappear pigmentation is apt to mark their sites for several weeks; these may later be replaced by white atrophic or cicatricial looking lines. Sometimes there is more or less sympathetic eruption of miliary papules scattered about the trunk. In comparatively recent cases any or all of the above lesions may be found on the skin. In long-standing cases, or in which pediculosis has existed at frequent intervals for many years, there may be an extreme polymorphous condition of the skin, particularly in the classical locations, and often of wider extent. Mingling with recent lesions above described may be found pustules, crusts, more or less diffused dermatitis, furuncles, abscess, deep pigmentations, etc. Occasionally grayish-brown to blackish-brown staining of the surface may be extensive, with or without the other aggravated lesions. A patient in my service at the Metropolitan Hospital presented a very general pigmentation of the skin from the neck to the knees due to repeated pediculosis. It is probable, as Kaposi has suggested, that some cases of reported Addison's disease were examples of pigmentation from pediculosis. Crocker mentions occasional pyrexia as a symptom, when the pediculi are numerous, especially in young persons. The worst types of the disease occur in the more chronic and degenerate tramps in whom change of clothing is of minor importance. Hence the term "vagabond's disease."

ETIOLOGY AND PATHOLOGY.—Predisposing causes are poor conditions of general and surface health from lack of food, cachexia, old age, uncleanness, etc. Vigorous and cleanly persons are rarely afflicted with pediculosis corporis. If the insect accidentally finds lodging in the clothing, habitual changing of the latter and bathing soon result in permanent eviction. The efficient cause is always a transference of the pediculi or their ova from one person directly or indirectly to another. The pregnant female lays her eggs in chain-like order in the seams or folds of the garments near the skin, to there incubate and mature if undisturbed. The color of this pediculus is a dirty white with blackish sides.

DIAGNOSIS.—In suspected cases, after the patient is partly undressed, careful search should be made in the seams and bands of the clothing next to the skin, especially about the neck, for signs of the pediculus or ova. This can be done without arousing the suspicion of the patient, while apparently examining the surface of the back, nates, etc. Unless the clothes have been recently changed the search will not usually be in vain. But even without being able to produce the *corpus delicti* the presence in the characteristic locations of minute hemorrhagic points, wheals, broad linear excoriations, pigmentations, and their absence on the hands and wrists will afford diagnostic evidences of the disease. No other affection with similar lesions would be limited to the same regions.

TREATMENT.—This can be directed towards the clothes rather than the patient. No cure can be expected while the infested clothing is worn. When expense is not a necessary obstacle, the underclothing had best be buried or burned, but they can be sterilized by boiling or baking at a temperature of not less than 212° F. The bedding, or at least the bed linen, should be treated in the same manner. With the foregoing precautions against reinfection, the patient with a supply of fresh clothing is practically cured. A thorough bath with some antiseptic soap, like boric acid or creolin, and water is advisable. Cutaneous eruptions remaining usually require only protective treatment as indicated for other kinds of symptomatic dermatitis, or by indicated physiological methods and drugs when systemic or functional derangements also exist.

C. PEDICULUS PUBIS

(*Phthiriasis pubis*; Crab louse.)

SYMPTOMS.—As the name foretells, this variety is found alone or chiefly on the hairy surface of the pubic region. With increase of number they may find their way or be transported to the hairy parts of the abdomen, thorax, axillæ, beard, and in the uncleanly may be found on the eyebrows, eyelids or lashes. They are said never to invade the scalp, although two exceptions have been recorded, both in infants. Occasionally they may be confined to the hairy parts of the upper segment of the trunk. In one case under my observation they were very numerous in the axillæ, while none were to be found in the pubic region. The habits of this species are like the *pediculus capitis*; it is, however, less active, smaller in size, and may be usually found clinging to one or two hairs where they emerge from the skin, with its head buried very deeply in the hair follicle. This digging into the follicle generally excites intense itching, and papular or more severe eczematous lesions result, but sometimes the disturbance is very slight. In some cases when scratching is not excited or for some reason not indulged, bluish or brownish, round or irregular, finger-nail sized pigmented spots have been observed deep in the epidermis of the affected area. These so-called *maculæ ceruleæ* are more distinct in light-skinned persons, and are believed to be due wholly or in part to the subepidermic infection of saliva by the pediculus from salivary glands situated opposite its forelegs. Some believe the effect of this secretion is to produce anæsthesia of itching without affecting other sensations. The spots fade away within a few days after the destruction of the parasites. Hemorrhagic specks may be often found, and in long lasting cases considerable eczema is apt to develop, sometimes extending beyond the hairy parts of the skin. The nits are similar to those of the *pediculus capitis*, and are found glued upon the hairs in the same way.

ETIOLOGY AND PATHOLOGY.—While less common than *pediculosis capitis* this variety is more often encountered in the well-to-do, and in the majority

of cases from contact during illicit sexual intercourse. It may be, however, communicated through the medium of beds, clothing, water closets, etc. The pubic louse is less prolific than the head louse, but the ova hatch out and mature in about the same length of time.

DIAGNOSIS.—Close investigation will always reveal (in true cases) the presence of the pediculi clinging to the hairs close to the skin. They are not easily disturbed, and it requires a little force to dislodge them; the ova can also be found. It is well to carefully inspect the pubic and other hairy regions in all cases of persistent pruritus of those parts.

TREATMENT.—Two things need *not* be done: the hair need not be cut or shaved off, as it exposes the parts to friction from the clothes, and mercurial ointment should not be applied, because it is no better than less nasty parasiticides and often causes a dermatitis. Solutions are to be preferred to ointments, as a rule. Infusion of tobacco, tincture of cocculus, or corrosive sublimate, one to two grains to an ounce of cologne, are serviceable applications. When there are eczematous lesions *naphthol* ointment, one drachm to an ounce of lard, is to be preferred; it may be reduced in strength for the further relief of the eczema when the pediculi have been destroyed. If pruritus is extreme or persistent, *carbolic acid*, one to forty, in lotion or ointment, is efficient.

Recovery from persistent or chronic pediculosis may be hastened by the use of such drugs as *Psorinum*, *Staph.* and *Sulphur*.

INSECT BITES

Pulex irritans.—The common *flea* pricks the skin to suck blood therefrom. A reddish swelling immediately forms around the puncture, but soon subsides unless the skin is delicate, as in women and children; then small, urticarial-like wheals may remain for a few hours and be distinguished for a time by the central puncture. A punctate (petechial) hemorrhage at the point of penetration is the usual result, lasting for several days, and when the lesions are numerous resemble purpura simplex, passing through the same gradations of color.

A **DIAGNOSIS** is easily made by an absence of symptoms of other affections, a discovery of the insect and the central puncture in recent lesions.

TREATMENT may call for weak carbolic acid or boric acid lotions. Stelwagon recommends the wearing of bags filled with gum-camphor beneath the clothing in the same manner that sulphur has been used.

Pulex penetrans.—The *jigger* or *sand flea* is a minute brownish-red parasite which may penetrate the skin of man and of the lower animals. Only fecundated females do the damage, and the bad results are said to arise "from distension of the ovary of the parasite which may exceed fivefold the original dimensions of the insect." It is found in the sandy regions of South America and the West Indies, and attacks usually the uncovered feet at the side of the

toe-nails, boring underneath with scarcely painful sensations. Less commonly it attacks other parts of the foot, the knee, scrotum, back, etc. If allowed to remain in the skin, the presence of the insect excites inflammation, suppuration, and sometimes gangrene. The TREATMENT consists in the early removal of the flea with a blunt-headed needle or probe, and local antiseptic applications adapted to the degree of inflammation. Anointing with essential oils or carbolic oil is said to be preventive.

Cimex lectularius.—The common *bedbug* would need no mention were it not that the lesions it produces are sometimes mistaken for urticaria, or the excoriations of pruritis essentialis. This animal only visits the human skin to feed. With systematic order it bites into the skin, injects therein the irritating contents of its salivary gland to produce an immediate increase in the flow of blood, and then proceeds to suck its fill of the latter. A raised reddish spot, with a lighter centre and central puncture, remains. This becomes purpuric and finally fades away in the usual manner. Itching is caused by the irritated wounds, and scratching is apt to leave linear and other excoriations. Real urticarial wheals may arise away from the point of injury, and some believe that cases of urticaria may be caused by repeated attacks and persist after the parasites have been destroyed. A DIAGNOSIS may usually be made from urticaria and pruritis in recent cases by the central puncture in the lesions, their most distinct appearance in the morning, fading during the day, and sometimes by finding the suspected insect in the crevices of the bed or adjacent walls of the room, or cracks in the floor.

The only effective TREATMENT is by a war of extermination on the parasite, or by a retreat of the victim to a safe distance. The local application of alcohol, spirit of camphor, tincture of ledum or weak carbolic acid solution, will relieve the irritation.

Culex pipiens, etc.—Mosquitoes and gnats, bees (*Apes melliferæ*), midges (*Simulia*), and wasps (*Vespidæ*), when they attack the human skin, produce wheals, œdema, and sometimes ecchymotic lesions, attended with pain and itching. The patient is usually aware of the cause of the eruption, and the puncture made by the insect can usually be seen. The discomfort arising from the eruption may be speedily allayed by rubbing it with spirit of camphor, ammonia water or baking soda, and then douching the part with cold water.

Leptus autumnalis.—The *harvest bug*, or mower's mite, is a minute reddish insect, visible to the naked eye, which may be found in the summer and autumn on the grass and bushes, and when accidentally lodged upon the skin of persons working in the field or garden may burrow its head in a follicle. It can be seen sometimes as a yellowish-red spot on the skin of the ankles, legs, feet and arms. It does not long survive on the skin, but in the meantime may give origin to a slight eruption of papules or wheals. These quickly subside spontaneously, or on the application of alcohol, spirit of camphor, or any anti-pruritic lotion.

Ixodes ricinus.—The female of several species of *wood-ticks* may be a transparent parasite on the human skin. It bores into the skin with its pro-

boscis, and sucking the blood, fills itself to repletion; presenting at this time the appearance of a pea-sized sac. It soon falls off, to return to the trees and await on hunger and another victim. If found on the skin, it should not be removed forcibly, as this might leave its proboscis in the wound and result in much pain. It may be left to fall off spontaneously, or be induced to quit at once, and, at the same time, killed by painting it with spirit of turpentine or by applying tobacco juice.

Dermanyssus avium.—These mites live on birds and fowls, and may be numerous in bird-cages and hen-houses. When they attack the human skin they cause a papular dermatitis, which subsides spontaneously.

Apis, *Crotalus*, *Ledum* or *Rhus tox.* may be indicated for troublesome or persistent lesions from insect bites.

FILARIA MEDINENSIS

(*Dracunculus medinensis*; Guinea-worm.)

This is an affection of tropical countries. It is not known positively how the embryo worm reaches the epidermis, whether through the intestinal track or from without through the surface. It is said to produce no general or local disturbance until mature, when some part of it may be felt like a small whipcord under the skin. It may migrate to some distance from the point of discovery, consuming weeks or months before finding its choice for exit; and if the parts traversed are thin, as along the fingers and over the joints, it causes considerable pain; in its passage through the fleshy tissues there may be felt only tension and uncomfortable fulness. Finally, after a variable time, it approaches near the surface, a vesicle, pustule, or tumor-like abscess forms, at the bottom of which rests the head of the worm. The place of exit is, in the majority of cases, on the foot, especially the heel; less often it may be on the leg or thigh, and rarely on the scrotum, hand, trunk, head, nose and orbit, but it has never been found in the brain or eye. Commonly there is only one worm, but there may be several, and rarely many. If much inflammation results from the presence of the worm, or its death in the tissues, serious results may follow from suppuration, gangrene, hectic fever, which may terminate in death from exhaustion or tetanus.

ETIOLOGY AND PATHOLOGY.—The published reports of studies of the evolution of this nematode worm make it almost certain that the larvæ enter the body through the drinking water. The embryos develop into larvæ in the body of a minute aquatic animal organism, and when accidentally swallowed in water by man the larvæ escape in the gastro-intestinal tract, undergo further development and impregnation, and some, including all the males, are supposed to be expelled in the feces. The surviving females make their way into the tissues, maturing as they go, until the new generation of embryos are ready for a further stage of evolution within the body of the lower aquatic animal first mentioned. Then the maternal worm seeks an exit on the surface, having

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attained the dimensions of about one-tenth of an inch thick by one to three or four feet long, and a cylindrical or slightly flattened shape.

The disease is endemic on the coast of Guinea, border of the Persian Gulf and Caspian Sea, in upper Egypt, some of the East and West Indies, Brazil, etc.

DIAGNOSIS.—This cannot be made with certainty until the worm approaches the surface and can be felt as a cord-like line under the skin, and change of position is observed before the lesion of exit is formed. Its endemic character should be remembered.

TREATMENT.—Where the disease prevails generally the natives are said to extract the worm by suction after the head has appeared, or by traction from running water, the foot being placed in a flowing stream for the purpose. The usual directions are to secure the head of the worm after the opening occurs in the skin, and draw out as much as will come easily without danger of breaking the worm. The extracted portion is wound around a piece of pasteboard, and a turn or two given each day until the entire length is drawn out. This may take several days or weeks. The best treatment is that devised by Emily, who injects in several places a solution of mercuric chloride (1:1000) into the swelling produced by the worm before she has pierced the skin. This kills the worm, which may be absorbed or removed by incision. If the head has appeared, then the solution is injected directly into the body, which may be removed the next day. Thus the length of treatment is reduced to four or five days.

CYSTICERUS CELLULOSÆ CUTIS

The hydatids of *tænia solium* are sometimes found in pea-sized tumors in the subcutaneous tissue and covered by unchanged skin. They are most often seen in countries where half cooked or raw pork is commonly eaten containing the ova of *tænia*. If the tumors are punctured a clear fluid will run out in which may be found the pathognomonic hooklets. The cutaneous lesions are of importance only in relation to hydatids of some internal organs.

DIAGNOSIS must be made from gumma, lipoma, epithelioma and sarcoma.

ECHINOCOCCUS

The larvæ or hydatid of the *tænia echinococcus* of the dog has been found in the human skin by Weyl, Geber and Davaine. This parasite becomes encapsulated, forming soft tumors or vesicles which produce a sensation of tension and which undergo fatty degeneration after the death of the parasite.

Küchenmeister has reported the presence of the embryos of the large liver-fluke (*distoma hepaticum*) encapsulated in subcutaneous tissue.

DEMODEX FOLLICULORUM

Demodex folliculorum was discovered by Henle in 1841, and is a microscopic worm-like insect found in comedo-plugs, in open sebaceous glands, in cases of acne and seborrhoea oleosa, as well as in normal cases. Pigmentation of the skin has been reported as traceable to this parasite.

B. VEGETABLE PARASITIC DISEASES

FAVUS

(*Tinea favosa*; *Tinea vera*; *Tinea lupinosa*; *Porrigo lupinosa*; *Porrigo favosa*; *Crusted ringworm*; *Honeycomb ringworm*, etc.)

DEFINITION.—A contagious parasitic affection of the scalp and other parts of the skin, due to a fungus growth, and characterized by cup-shaped, pale-yellow, split-pea sized or smaller, discrete or confluent crusts.

SYMPTOMS.—The disease usually begins first on the scalp, but may occur upon any part of the skin and with extreme rarity on the mucous surfaces. In the early stage it appears as a circumscribed or diffused inflammation, with moderate scaling, followed in a short time by the formation of yellowish pin-head crusts at the hair follicle and commonly around the hair shaft close to the surface. These are concave from the first, but as they increase in size and elevation the circular cup shape becomes more apparent, especially in isolated lesions. Here the more elevated rim may be of a darker color from admixture of epidermic cells and dust in contrast with the less elevated, striated, pale, sulphur-colored centre, sometimes distinct enough to appear like two separate formations. The term *favus lupinosus* has been used to designate the single isolated lesion. The favus crusts are friable and can be powdered between the fingers; they are often aggregated into masses, sometimes preserving a round shape only at the free border, *favus squarrosus*. If the scutula are removed, the surface underneath is found irregularly depressed, in which depression has rested the corresponding uneven, moist under surface of the crust. The depressions in the rete soon fill out after removal of the crusts; occasionally the papillæ are torn by separation of the crust and bleeding occurs. Inflammation in various degrees may occur, sometimes pustular, and in rare, long-lasting cases it may be ulcerative in character. The products of inflammation, the admixture of dirt, or medicated applications may change the color of the crusts in advanced cases to a greenish-yellow or brownish hue. When the favus cups are fully formed, after a variable period of months, the crusts fall off spontaneously or from accidental friction, leaving hairless, white, atrophic spots to mark their former sites. These may

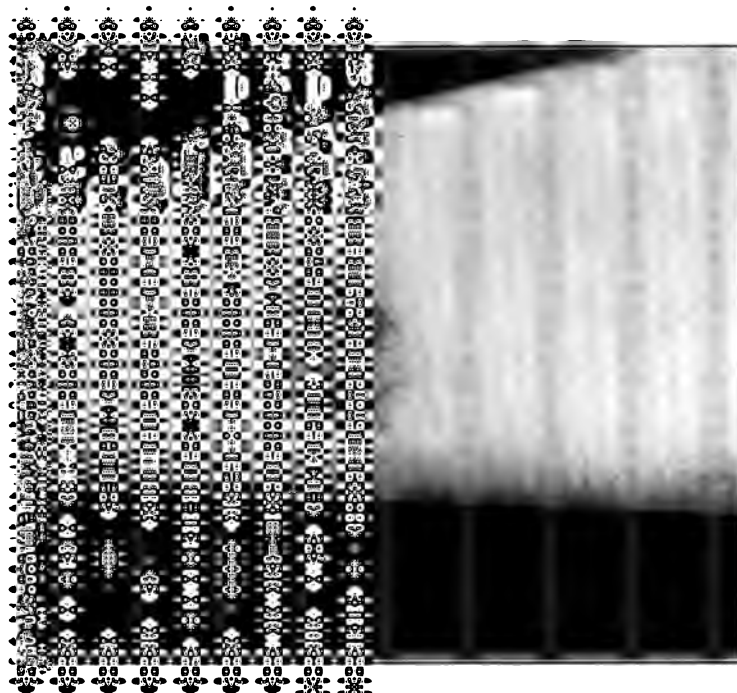
be permanent and, rarely, the atrophy may extend to the subcutaneous tissues; even atrophy and necrosis of the bones of the skull have been reported. On the scalp the hair is usually affected, becomes dry, brittle, lustreless, splits or breaks off, gets loose from its attachment and falls or is easily drawn out; if not regenerated and pressure continued the papillæ and follicle may be obliterated, and partial or complete baldness remain over a less or greater extent of the scalp.

The *nails* are rarely attacked with favus, and then it is nearly always communicated by scratching the scalp. It begins usually at the free border of the nail, but may appear in the centre or near the lunula. In the substance of the nail it may appear through the smooth outer surface as distinct sulphur-yellow spots, or the nail may become dry, opaque, split, furrowed, fissured, raised from its bed, presenting a similar appearance of the nail, as in some other forms of onychitis, and indistinguishable except by a microscopic examination of scrapings from the diseased parts.

Favus tends always to pursue a chronic course, beginning often in childhood and lasting sometimes for years; varying greatly in intensity in different cases, occasionally ceasing spontaneously, but sometimes becoming extensive and exhibiting all its various phases at one time, and finally, perhaps, losing all its earlier characteristics in indefinite scaling and atrophic scars here and there in the regions affected.

On the *non-hairy* parts especially the disease is apt to assume atypical forms and resemble circinate ringworm; occurring in round, scaly patches which become clearer in the centre, forming an elevated ring, vesicular, papular, scaly or smooth. Two or more patches may unite into figurate patterns, and in the centre or near the circumference of the primary or secondary patches may be found the characteristic favus crusts. The latter may be absent, owing to the less favorable location for the fungus to flourish in the lanugo follicle than in the follicle of the larger hair of the scalp; for the same reason the disease is more apt to cease spontaneously after, perhaps, a more rapid development, and to leave less marked or no atrophic effects behind. Sometimes, however, it exhibits the same vigor and persistence on the non-hairy parts as on the scalp, and the neglected cases may extend over a large part of the skin. The most frequent *complications* of favus are pediculosis, impetigo contagiosa, eczema and enlargement, rarely suppuration of the cervical glands. These affections not only change the objective features of the primary disease, but may contribute largely to the *sensations* of itching, tension, fullness, which in uncomplicated favus are usually very slight. In a well-developed case the *odor* of favus is characteristic, and has been likened to musty straw or mice.

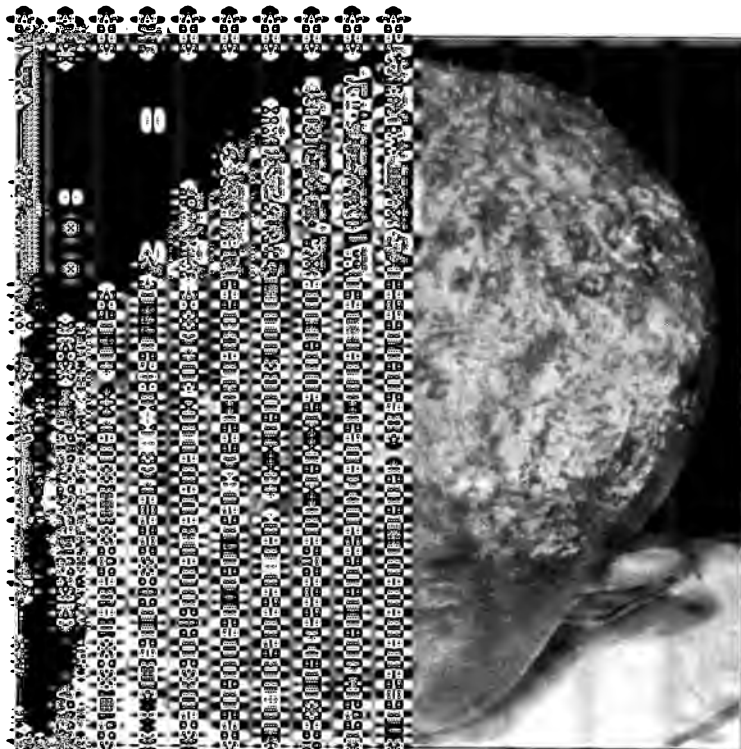
ETIOLOGY AND PATHOLOGY.—While favus is directly contagious from one person to another, from animal to animal, mice, cats, dogs, rabbits, fowls, and from the latter to man; it develops so slowly and then only when undisturbed for a time that it is rarely communicated to a well-cared-for skin. Filth and personal uncleanness are almost essential co-operating factors in the mode of contagion. It does not spread in a family or institution with nearly the



—FAVUS

OF THE FOREARM

washed but uncleanly. Disease began twenty
itching sensations just about the crusts,
The lesion consists of one whole and a por-
tion of the forearm. The area. The red, week
was followed by a thick crust of sulphur.

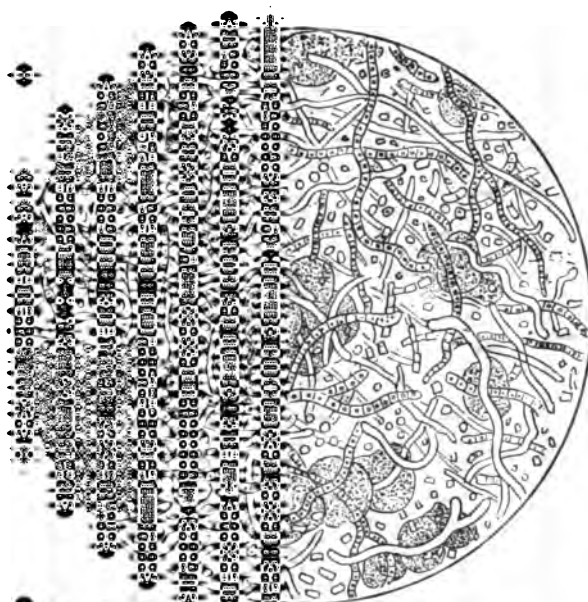


LEUKOPLAKIA OF THE SCALP

VARIETY OF THE SCALP

for anæmic boy. Disease first appeared from which developed yellowish cup-
less apparent as the course lengthened,
pharynx of the throat, in the
late appearance daily

by Schönlein in 1839, and has since been called tinea capitis. It consists of mycelium and spores, the spores usually gain access to the skin in a measure protected, find space to grow in the layer of the epidermis and deeper cells and spores. Their growth between the scales makes up the outer layers around the hair



schönleinii (x about 800; diagrammatic).

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nective tissue. Scars of this origin are likely to be permanent. It is believed that the fungus finds its way into the hair chiefly through the more vulnerable cells about the bulb, and to some extent through the cortex. They are often found abundantly in both the root and root sheaths, running principally in a longitudinal direction, and between the two causing separation and loosening of the hair. From the root the parasite may penetrate into the subcutaneous tissues, giving rise to inflammation and consequent scarring.

For microscopic examination a hair may be extracted, soaked in a five per cent. solution of caustic potash and then slightly flattened out on the glass slide. A particle of favus crust may be prepared for examination by first macerating it in a solution of ammonia, which isolates the parasitic fungi. The spores are about 1-3000th of an inch, and the mycelium filament smaller in diameter. A magnifying power of 300 to 500 brings them in plain view. They may be stained a brownish color by moistening them with a few drops of an aqueous iodine solution to which has been added iodide of potassium.

DIAGNOSIS.—A typical case of favus may be recognized without difficulty. The sulphur-yellow, cup-shaped crusts are pathognomonic, especially on the scalp with the central penetrating hair; the friable nature of the crusts and the mousey odor are diagnostic. When all the crusts have lost their typical shape and color, the disease is liable to be mistaken for crusting or scaling eczema, psoriasis, seborrhœa and ringworm.

Eczema occurs in diffused, ill-defined patches; its crusts are greenish-yellow or darker, tenacious, not powdery, without characteristic odor; the hair remains unaffected or matted together; it may be thinned but does not fall out in isolated patches, and there is no scarring as compared with the well-defined lesions of favus, its sulphur-yellow, dry, friable crusts, characteristic odor, dry, lustreless hair, easily falling out in the affected patches, and often resulting in scars. In *psoriasis* the scales are whiter and cover a smooth, reddish surface, which easily bleeds; the hair is unaffected and there is an absence of odor or scarring. While nearly always some sulphur or lemon-yellow scales can be found at the border of a patch or about a hair in favus, the surface is apt to be depressed underneath, the hair is always affected, and there may be odor and scarring.

Seborrhœa of the scalp is usually diffused, not sharply defined, the scales are fatty and the skin underneath is smooth, normal or paler in color; any loss of hair would be a general thinning and scarring would not occur. These differences would easily exclude favus. A circular patch of *seborrhœic dermatitis* of the non-hairy parts might be confounded with favus before the appearance of the yellow cup-like crusts of the latter. The presence of seborrhœa of the scalp, the deeper redness of the patch, and the greasy scales would favor seborrhœa. In differentiating any of the above diseases a microscopical discovery of the favus fungi would be conclusive.

Ringworm and favus patches may closely resemble each other and even the microscope may not give a positive differentiation. A more uniform scaliness of the patch, the vesicular, advancing border and the stubbly hairs favor

ringworm. Under the microscope the spores of ringworm are found to be smaller, more uniform in size and less numerous than those in favus. These in connection with the microscopic features will usually serve to distinguish trichophytosis. If not, a few days without treatment may show a development of favus crusts or new foci of ringworm as the case may be, though it must be said the distinction is not very important. .

PROGNOSIS.—This is almost invariably good under persistent treatment, and the general health is commonly unaffected. Kaposi mentions one case of general favus attended with intense dermatitis, vomiting and diarrhœa, which proved fatal, and on post mortem revealed favus foci in the mucous membrane of the œsophagus.

TREATMENT.—Methods directed to the removal of the efficient cause are first and always in order in the treatment of favus. The crusts may be softened with applications of oil for a few hours, a cap or hood being constantly worn over the head; then the larger crusts can be lifted off and the remnants removed by thorough cleansing with soft soap and water. This will be facilitated by first cutting the hair short, as will also the application of a parasiticide to follow. Choice of the latter may be somewhat guided by the extent of the disease and the surroundings of the patient. In public practice, when the patient is not under close observation, a saturated solution of *sodium hypsulphite* is safe and efficient and can be applied freely with friction twice daily. A saturated solution of *sulphurous acid*, or a one to four per cent. solution of *formalin* used in the same way is highly recommended. *Sulphur ointment*, in the strength of two drachms to an ounce of lard, may be entrusted to the same class of patients. In obstinate cases an ointment of *oleate of copper*, one to three drachms to the ounce, has been found serviceable. More cleanly and nearly as effective applications are *naphthol*, one part to eight of ointment base, or *resorcin*, one part to three of lanolin and five of sweet almond oil. Solutions of *bichloride of mercury* (two grains to the ounce of ether or alcohol), and other preparations of mercury are sometimes advised in the local treatment of favus, but they are ill adapted for use on the skin of children, and possess no advantages over less objectionable parasiticides. Whatever application is employed, the diseased hairs should be extracted so far as possible just previous to its use; thus permitting the medicament to enter the follicles left open by their extraction. Various methods of epilation are practiced; Kaposi advises grasping the hairs between the thumb and a blunt tongued spatula held in the hand. With moderate traction the affected and loosened hairs come out, while the sound hairs remain in place. I have found a worn (roughened) kid glove finger cut from an old glove, and which fits closely on the forefinger, a good substitute for the spatula or piece of cardboard sometimes advised. With it epilation can be done more rapidly, painlessly and just as effectively. The diseased hairs should be extracted daily as long as found in any number, and occasionally thereafter until a cure is effected, which usually requires several months. The painful method of epilation practiced by the French through application of the pitch cap, which, on removal, brought away

the sound as well as the diseased hairs, is not advised, while the method of Bulkley, though a great improvement over the French "calotte," and less painful, is not as convenient as, nor more effective than the first-named plan. Bulkley uses *compound pitch sticks*, which are heated, entangled in the hair of the diseased area and when cool are quickly withdrawn, bringing the hair with them. The formula from which these sticks are made is as follows:

R. Cere flavæ.....	3 3.
Laccæ in tubulis.....	3 4.
Resinæ.....	3 6.
Picis Burgundicæ.....	3 11.
Gummi dammar.....	3 1½. M.

The *Röntgen rays* have been used to remove the hair and the danger of permanent alopecia is slight, but as a rule the disease will reappear with the new growth of hair.

Epilation forceps can be used in removing the affected hairs, especially the very short ones. When there are only a few short hairs left on a patch I have found painting the surface freely with strong iodine tincture, and as soon as dry covering it with a coating of collodion, to work well. This, in a degree, occludes the air from the affected part, and any remaining stumps of diseased hair are likely to come away when the collodion film is removed with forceps after two or three days. The dressing can be repeated as many times as needed, care being taken not to excite a dermatitis. Favus of the general surface is easily cured. After removal of the crusts thorough washing with strong soap may be sufficient, but it is wiser to rub in some one of the parasitocides above named.

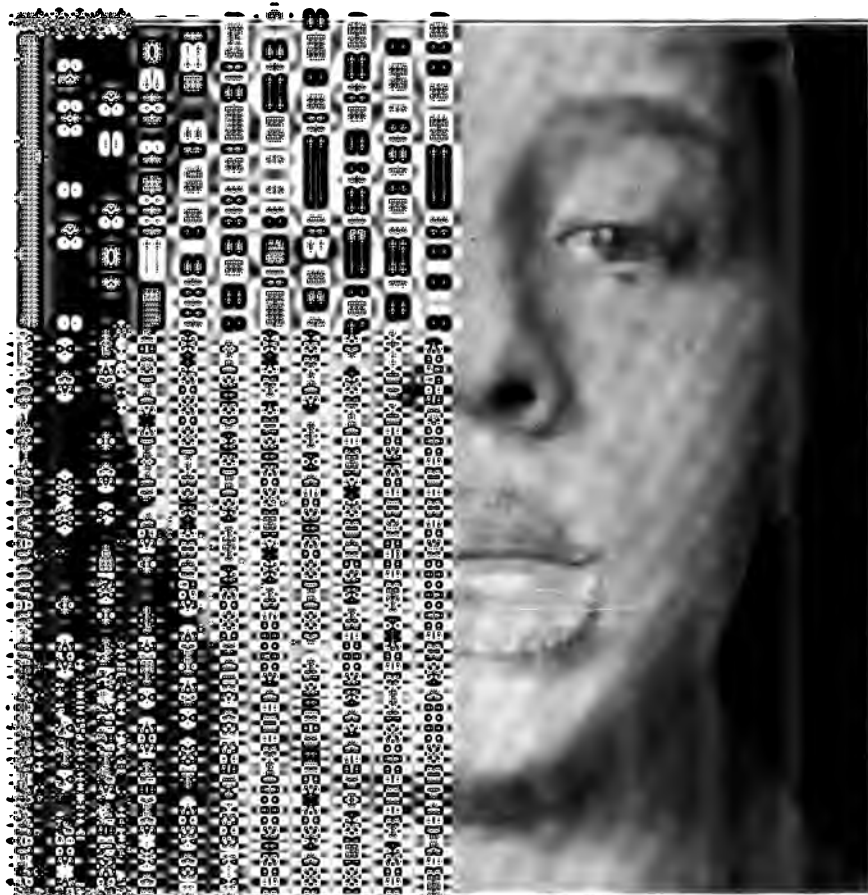
When the *nails* are affected the diseased spots should be scraped thin repeatedly, and a strong antiparasitic ointment rubbed in twice daily, or a mercurial, hydronaphthol or resorcin plaster may be worn on the nails during the night, or continuously in some cases. Avulsion is sometimes recommended as the quickest method of cure; it is seldom necessary.

All cases probably recover faster under the tissue effect of an internal remedy combined with the causal methods outlined. See *Kali carb.*, *Lyc.*, *Mez.*, *Nat. mur.*, *Phos.*, *Staph.* and *Sulphur*.

TINEA TRICHOPHYTINA

(*Trichophytosis; Ringworm.*)

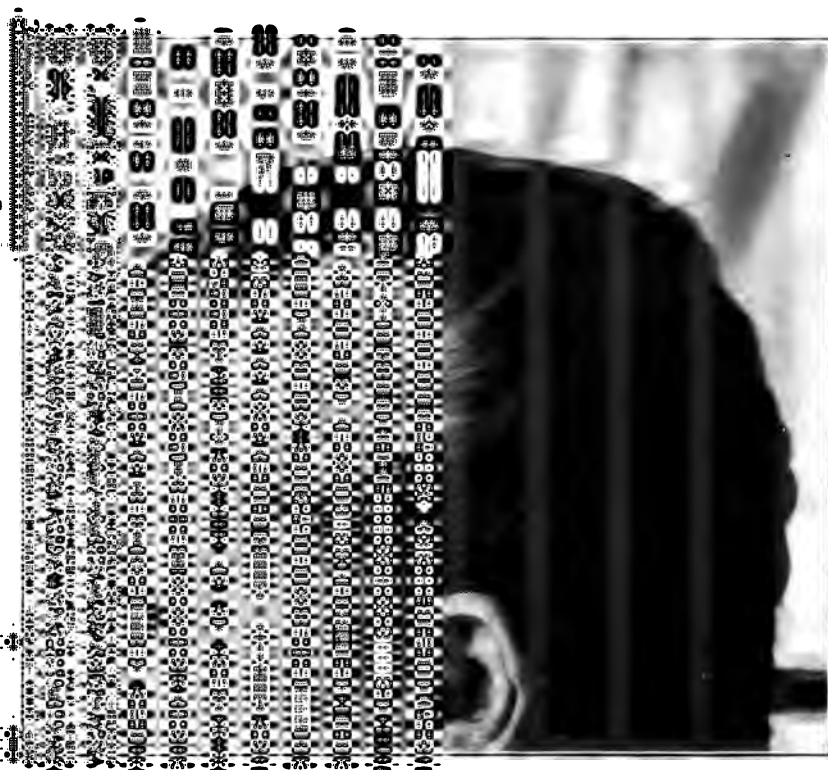
The regional varieties of ringworm were once thought to be distinct diseases, and although all are now known to be due to the presence of one of the ringworm fungi, their clinical differences make it convenient to retain the distinctive or qualifying names. There are three principal forms: *tinea circinata* (ringworm of the body); *tinea tonsurans* (ringworm of the head); *tinea barbæ* (ringworm of the beard). While two others, *tinea cruris seu axillaris*



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TONSURANS

direct contagion. For two months treatment was continued. The lesions became eczematous. A smaller lesion at the vertex was removed surgically and retained the typical appearance. The patient was cured and the hair grew again. The patient was cured and the hair grew again.

(eczema marginatum), and tinea unguim (ringworm of the nails), may be looked upon as subordinate forms.

Tinea circinata.—(Trichophytosis corporis; Herpes circinatus; Ringworm of the body.) Ringworm of the body may appear alone or in association with other forms of the disease. It begins as a small pale-red, well-defined and slightly raised spot, which soon becomes scaly, tends to clear in the centre as the periphery extends, thus forming a ring-like lesion. The border is pretty uniformly elevated during its further development, sharply defined, and often consists of papules, papulo-vesicles as well as small scales. Either form of lesion may predominate at the periphery. A patch may reach the size of a nickel to the palm of the hand before completing its evolution, then remain stationary for a time, or involution may at once begin, resulting in its gradually disappearing spontaneously. Sometimes gyrate forms may result from a coalescence of neighboring rings. Quite often the lesions are single or on different parts of the body; more frequently there are several in the same region, usually on the exposed surfaces, such as the neck, face, hands, etc. Any part of the body may be attacked, but generally without symmetry or order.

When the disease attacks the skin of the crural or axillary regions, however, or in so-called *eczema marginatum*, symmetry of development is often observed. Here the warmth and moisture of the parts greatly favor the growth of the fungus, and the rapid development of the lesions excites great itching, irritation, and sometimes inflammation. Starting about the inner part of the thighs or inguinal regions, single or conjoint patches extend rapidly, coalesce and form festooned, elevated, broad, papular, squamous borders enclosing inflamed or pigmented areas. Not infrequently fresh rings or segments of circles form within the enclosure, while the primary line may keep on advancing even down to the knee, up to the navel, or on to the perineum and out over the buttocks. There is commonly more or less eczematous inflammation, and in some cases considerable exudation and crusting. Rarely the disease is exhibited at first in distinct, elevated lines, concentric rings, circles, broken circles, or festooned loops, with the skin comparatively clear between. In tropical climates this variety occurs in such aggravated forms that the name of the country is sometimes given to it, as, for instance, Chinese or Burmese ringworm.

Tinea circinata patches frequently do not clear in the centre, but remain scaly with or without the papular or vesicular border; the latter may be little raised though well defined and the patch may be irregular in shape. Again, the border may be pustular from more intense inflammation, or the whole of the affected surface may exhibit scattered papules, vesicles or pustules. Unless more typical ringworm lesions are found, these variations could hardly be recognized except by microscopic tests.

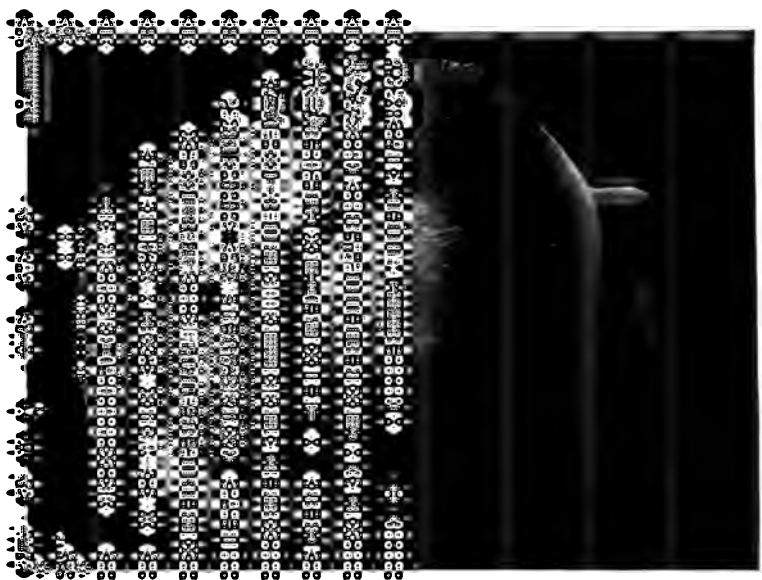
The *nails* are not often attacked by the ringworm fungus, *tinea unguim* or *onychomycosis*. Under the latter term it will be found in the section on diseases of the nails, and its treatment will be referred to later.

Tinea tonsurans.—(Trichophytosis capitis; Herpes tonsurans; Porrigo

furfurans; *Tinea tonsurans*; Ringworm of the scalp, etc.) Ringworm of the head is a common disease among neglected children. It begins as a superficial affection of the scalp in the form of a scaly, reddish, round or irregular patch. This is small at first, and if seen early enough may appear as a papular elevation about one or more hairs; it soon enlarges, with perhaps a show of vesicles or pustules at the margin, which do not long persist as a rule, and the whole surface of the patch is found covered with whitish, branny scales; continuing to spread at the periphery, it may reach the size of a dime to a silver dollar. In the meantime the disease extends to the hairs; they lose their lustre, become dry, brittle and broken off, or on any attempt to remove them break near or below the surface. Sometimes the hairy stumps are so short that careful search is necessary to find them, and in fair, fine-haired persons the hairs may be twisted or matted down with the scales. A round, ringworm lesion of the scalp may look like a priest's tonsure, hence the name, *tinea tonsurans*. Other patches usually exist on some parts of the scalp, and two or more may coalesce and form irregular or gyrate shapes of large extent. The favorite sites are the crown and parietal regions. *Tinea circinata* may be present at the same time on the adjacent regions of the neck or face, or on more remote regions of the body.

The color of the larger patches of trichophytosis capitis varies somewhat in different cases; more often they are a dirty gray shade, but they may be a bluish-gray, greenish-yellow, or keep their earlier reddish hue. They are elevated above the surface and sharply defined. The ends of the broken hairs often have a whitish look from the presence of the fungus and epithelial debris. In the further course of the disease the hair may fall out spontaneously and temporary baldness result. As the scales desquamate or are removed the follicles may have a puckered appearance, which has been compared to the skin of a feather-picked fowl, and occasionally a few pustules may be found in connection with the remnants of diseased hair stumps. When the pustular inflammation is deep in the follicle the condition known as *kerion* exists.

Kerion, or pustular folliculitis, due to the invasion of the ringworm fungus, and probably also to pus cocci or other organisms, is therefore theoretically a product of a mixed infection analogous to the process in *tinea barbæ*. It develops by an aggregation of inflamed follicles into oedematous or fluctuating, well-defined elevation of the scalp, yellowish, reddish or purplish in color and at the outlets of the follicles studded with suppurating points. The hair is loosened by the suppuration and falls out, giving exit to a muco-purulent, honey-like discharge. These lesions often resemble carbuncles, but are not as painful or prostrating, and do not result in sloughing, though abscesses sometimes form. *Kerion* may be mild or severe; it tends to pursue a persistent, chronic course and the presence of the parasitic fungus cannot always be demonstrated. Permanent baldness may follow the severe cases. Sometimes *impetigo contagiosa* becomes a complication of *tinea tonsurans* and both diseases may spread rapidly in consequence, but the superficial character of the *impetigo* lesions readily distinguishes it from *kerion*.



TONSURANS

duration of disease, one year. The
microscopically. Treatment con-
e per cent. solution of *iodine* in col-
with decimal, internally. A cure was

Occasionally ringworm persists on the scalp in a disseminated form, in which there is little or no loss of hair or other special signs of the disease except some scaliness and on careful search a few dry, brittle hairs or one or more broken stumps of hair scattered here or there. In young children or youths with fine hair, superficial circinate lesions may occasionally be seen, which may later assume the features of ordinary cases or disappear quickly under treatment. Another rare variation has been described as *bald tinea tonsurans* which, often beginning as ordinary ringworm, is succeeded by a circumscribed baldness and a smooth appearance of the patch similar to alopecia areata. Usually stumps of hairs may be found around the border of the area denuded of hair, and the ringworm fungus may be found in the affected hairs. Some authors believe that this form is closely related to the parasitic variety of alopecia areata. Most forms of ringworm of the head are unattended with pain, but some degree of itching is commonly felt.

It is possible in some cases to differentiate clinically the ringworms caused by the trichophyton as contrasted with those cases caused by the microsporon Audouini, but the value of such distinction is slight to the physician, whose aim is solely to cure the disease.

Tinea barbæ.—(Trichophytosis barbæ; Tinea sycosis; Sycosis parasitica; Parasitic sycosis; Herpes tonsurans barbæ; Mentagra parasitica; Ringworm of the beard; Barber's itch, etc.) Ringworm of the bearded portion of the face and neck of the adult male usually begins as a tinea circinata, and may run a superficial course, and ending in favorable cases without inflammation of the hair follicles. When the latter are involved the hair becomes dry, brittle, often whitish in color, is easily removed or falls out. Papules develop on the surface, and deeper, nodular, tender indurations form, varying in size and shape and covered by the elevated, red or purplish skin. Hair pierced pustules may be present in a few or large numbers, and in the more cleanly victims of barber's itch these may chiefly characterize the disease; in other cases there may be considerable surface suppuration forming crusts as in pustular eczema, which, on removal, may reveal the sycotic (fig-like) appearance of the inflamed skin. Not infrequently suppuration is absent or very slight; in fact, the disease varies widely in degree and extent, sometimes the pustular, the nodular or the eczematous form predominating, or again mingling together. The disease may occur on any part of the bearded portion of the face, and on one or both sides. More commonly it is found on or near the chin and neck. The local sensations felt are varying degrees of itching, burning and tension.

This variety of ringworm always tends to pursue a chronic course, lasting frequently for years, and often relapsing if not persistently treated. The process in the nodular type is analogous to kerion of the scalp, due to the penetration of the fungus element through the hair follicle into the root and shaft of the hair, and by its presence and growth separating the latter from its follicle and producing more or less infiltration and inflammation of the adjacent tissues. If the suppurative process destroys the follicles, permanent loss of hair and scarring result.

dren. If found in ringworm of the body or beard, the patches are not typical and rarely persist. The trichophyton is composed of cuboidal or oval spores, larger than those of the microsporon and arranged in chains or lines extending up and down the hair shaft. The mycelia are found without the hairs and never within, while the spores vary in location. Three forms of trichophyton may be noted: endothrix, in which the spores occur wholly within the hair and which is found, like the microsporon, chiefly in ringworm of the scalp of children, although it may occur in atypical lesions on the face and neck; ectothrix, in which the spores are found wholly without, and endo-ectothrix, in which the spores are found both within and without the hair. The last two varieties of trichophyton are derived from domestic animals, directly or indirectly, and cause ringworm of the beard, of the body and of all pustular or suppurating varieties. Some authorities prefer to believe that the varied appearances of ringworm lesions are due wholly to differences in the media or in the cultivation of the parasite. The geographical distribution of the varieties is interesting. In London ninety per cent., in Paris, sixty per cent. of all cases of tinea tonsurans in children are due to the microsporon, and White of Boston found it in 139 out of 279 cases examined. In England the microsporon even occurs in ringworm of the body and in kerion; on the other hand, it is unknown in parts of Italy and Germany; while the trichophyton is rare in England.

For microscopic examination the scales removed from a supposed ringworm lesion should be placed on a glass slide, moistened with a drop or two of liquor potassæ, over which a glass cover is firmly pressed to separate the particles underneath. If a hair root is to be examined, it should be soaked first for half an hour in the potash solution and then flattened out under the glass cover. Under a power of at least two hundred and fifty diameters the conidia or spores and mycelium threads can be usually found, if the scales or hair were obtained from a true case of ringworm. A higher power may be needed to bring the fungus elements into clear view in some cases, but the absence of fungi is not always proof positive of the non-existence of trichophytosis. The microscopic evidence may not be easy to find.

In tinea circinata the fungus is situated in and under the corneous layer of the epidermis, giving rise to papules, vesicles and desquamation. In the tinea tonsurans and tinea sycosis, it usually invades both the epidermis and the hair follicles. The growth of the parasites in the hair is much more vigorous than in the superficial layer of the skin, though found, as a rule, most abundant in the corneous layer about the hairs when the latter are affected. The spores are found to greatly exceed the mycelium in ringworm of the head, while it is claimed by Jamieson that in ringworm of the beard the mycelium are most numerous, and account for the more intense grade of inflammation common in the latter form, the growth of mycelium proving more irritating than the multiplication of spores. The fungus gains access to the hair through the follicle, between it and the hair shaft, and working downwards it reaches the soft substance of the bulb. Here the spores have been found in large number previous to the invasion of the shaft, which supports the general belief

that the hair shaft becomes affected from the bulb upwards, though Unna and others hold the opinion that the fungus penetrates from the more superficial portion of the follicle directly into the shaft of the hair through its cuticle. By whatever avenue of ingress the conidia reach the bulb of the root in their subsequent growth upwards, the fibres of the cuticle and also the epidermic laminae of the shaft become separated to some extent, rendering the hair brittle and easily broken. Besides invading the hair and inner root sheath, according to Robinson, the fungus may penetrate into the outer root sheath, and in severe cases into the perifollicular tissue.

DIAGNOSIS.—This is very important, particularly when the disease arises in a family of children or in institutions for the care of children where, if unrecognized, it is likely to be soon spread from child to child. Typical cases of ringworm of the *body* are often distinguished by the laity by the circular and ring-like patches. On the *scalp* dry, scaly patches in which the hair is broken, twisted in various directions, or in fine-haired children sometimes matted or entangled with the scales, is always an indication of *tinea tonsurans*. Duckworth's simple test will help to determine the diagnosis. It consists in placing a few drops of chloroform on a suspected patch and allowing it to evaporate; the hairs affected with fungus turn yellow or white, whereas the sound hairs are not affected.

The disease in either form may, however, simulate eczema, psoriasis, seborrhoea, favus, pityriasis rosea and alopecia areata.

Squamous *eczema* patches are not so sharply defined as those of ringworm, do not spread by an elevated and advancing border, but rather merge gradually into the surrounding skin with more even distribution, greater infiltration, and without healthy areas of skin between neighboring patches. On the scalp the hairs are not affected by eczema, nor do the patches extend by peripheral growth as in ringworm. Moreover, squamous eczema is non-contagious, chronic in course, attended with a greater degree of itching, and the fungus is absent. Occasionally the two affections may coexist, and rarely the itching in *tinea tonsurans* may be intense enough to lead to excoriations like those common in eczema.

Psoriasis of the scalp or the non-hairy surface may develop by peripheral growth into similar shaped scaly lesions as ringworm, but as a rule the lesions of the former are more numerous, symmetrically distributed and chiefly on the extensor surfaces, and the scales are thicker, pearly-white and more abundant. On the scalp the hairs are unaffected as in *tinea tonsurans*. Furthermore, in psoriasis there is no history of contagion, its course is generally chronic, and the parasitic fungus is absent.

Seborrhoea or seborrhoeic dermatitis may develop in well-defined round, circular or annular patches resembling *tinea circinata*; but the scales of seborrhoea are somewhat greasy, and the open orifice of the follicles can usually be seen. Seborrhoea of the scalp is commonly diffused and symmetrical as compared with the usually circumscribed and asymmetrical patches of ringworm. The latter is a disease of childhood, whereas seborrhoea is commonly an affec-

tion of adult life, and if the hair is affected it is by a general thinning instead of by the characteristic broken-off stumps due to ringworm. In all doubtful cases the microscope should be employed to determine the presence or not of the fungus in the scales or hair.

Favus is ordinarily easily distinguished from ringworm by its peculiar cup-shaped crusts and odor. For other differential points see the former.

In *pityriasis rosea* the lesions are more widely distributed than those of ringworm of the body; they are usually most abundant on or limited to the trunk, rose-red or yellowish in color. It is less scaly, not contagious, or due to the presence of fungi, and generally disappears spontaneously in from two to eight weeks.

A case of "bald tinea tonsurans" may closely resemble parasitic *alopecia areata*, if not identical with it. The presence of other ringworm lesions on the same patient or in other members of a household, school, or the detection of the fungus in the diseased hairs at the margin of a patch are the only certain ways of diagnosis.

When kerion develops on the scalp it may present a likeness to *carbuncle*. The different history, absence of necrosis, and the possible discovery of the parasite on or after repeated microscopic examination will distinguish kerion. Superficial ringworm of the beard may be recognized by the same diagnostic features as pertain to tinea circinata, and may be differentiated thereby from the same affections as the latter. When the hair follicles become invaded, tinea barbæ may be mistaken for ordinary (coccogenous) sycosis, or for eczema of the beard. Pustular sycosis begins with the formation of pustules at the mouth of the follicles with a firmly implanted hair piercing the centre of each; free suppuration may occur, but is generally superficial, and extraction of the hair is painful; while tinea sycosis penetrates to the deeper parts, producing lumpy or brawny swellings with little or no suppuration, but with loosening of the hairs involved which may be extracted easily and without pain. Pustular sycosis is attended with pain, burning or itching, is much more common, often affects the upper lip, where tinea sycosis seldom occurs, and the latter rarely causes much suffering. Finally a microscopic examination of the diseased hair will reveal the fungus in a case of ringworm sycosis.

Eczema of the bearded portion of the face or neck may not be limited to the follicles (eczematous folliculitis), but also involve the inter-pilary surfaces with serous or sero-purulent discharge, crusting, etc., common to the eczematous process, and not occurring in uncomplicated tinea sycosis. Moreover, the nodular or lumpy swelling is absent in eczema, the hairs remain unaffected and cannot be extracted without difficulty and pain.

PROGNOSIS.—Tinea circinata is easily cured in from one to two weeks. Tinea tonsurans and tinea barbæ are always curable under judicious and persistent treatment, but it is very difficult to foresee how much time may be required to effect a cure; probably four or five weeks to as many months would represent the extremes.

TREATMENT OF RINGWORM.—As there is no doubt as to the efficient cause

of ringworm, so there can be no question as to the wisdom of employing means to effect a removal of the prime factor. It is quite true that the disease on the non-hairy parts of the skin can be cured by indicated drugs, but such treatment alone lacks the element of prevention so important in the management of parasitic disease. On the hairy surfaces both local and internal medication are often needed to effect a satisfactory cure, only obtained in obstinate cases after long and persistent treatment. In all cases the clothing worn next to the skin, hats, caps, toilet articles, etc., in use should be disinfected or sterilized by baking or boiling.

Tinea circinata may be treated locally with almost any simple parasiticide after the skin has been thoroughly softened and cleansed with soap and water or alcohol. Painting the patches with tincture of *iodine*, or twenty-five per cent. solution of iodine in collodion, daily for five or ten days is often effective. *Boric acid*, one drachm, *thymol*, ten drops; to three ounces of alcohol, is suited to mild cases. *Hyposulphite of soda* in saturated aqueous solution, or *sulphurous acid* solution, and for adults a solution of *corrosive sublimate* in the strength of two to four grains to the ounce of water may be used for severer cases. Any of the following ointments are usually efficacious: *Salicylic acid*, twenty to fifty grains, *sulphur sub.*, one to two drachms, or *hydrarg. ammon.*, ten to forty grains to an ounce of lard or simple cerate, and *ung. hydrg. nit. dil.* The two last are well adapted for application to the affected skin of infants or younger children. The younger the child, as a rule, the less strength of parasiticide required. Ointments or washes should be applied three times daily for a few days, and then less frequently for a longer time. In the form of trichophytosis known as *eczema marginatum*, the strength of the local application should be adapted to the needs of each case. Any of the parasitocides mentioned above may be used, but frequently owing to the luxuriant growth of the fungus in this variety stronger applications are needed. In obstinate cases I have found nothing superior to *oleate of copper* ointment diluted one-half with vaseline or lard. When there is considerable congestion and sensitiveness of the parts the following combination recommended by Shoemaker has been found serviceable:

- R. Acidi carbolic.....gr. 5.
 Cupri oliatis.....gr. 10.
 Ungt. zinci oxidi benz.3 1.
 M. Sig.—Apply thoroughly night and morning.

Whatever ointment is used closely fitting cotton trunks may be constantly worn, or when the disease is in the axillary region a closely worn undershirt is helpful in keeping opposing surfaces apart and protecting the outer clothing from the medicament. For the latter purpose thin rubber or oil silk can be stitched over the inner garment. If for any reason ointments are objectionable, the *sodium hyposulphite* solution can be used or *mercur. cor.* one to three grains to an ounce of tincture of tolu. The latter can also be painted over the part every day or two for one or two weeks following an apparent cure to prevent a relapse.

Onychomycosis or ringworm of the nails may be treated by thoroughly scraping the diseased parts of the nail, followed by covering the nail with lint soaked with the *sodium hyposulphite* or *sulphurous acid* solution before mentioned, covered with a thin rubber cap or glove, and worn during the night. If the hands need to be used during the day, the nails may be covered with mercurial plaster and overlaid by a longer piece of thin adhesive plaster, or rubber finger covers can be worn. This plan may be repeated every day until evidences of the parasitic disease have disappeared, and then it may be followed by light applications once or twice daily of *oleate of mercury* ointment until the nail has regrown. In severe cases after filing or scraping the nail the latter ointment may be applied continuously until the diseased part exfoliates, or the plan mentioned by Crocker and credited to Harrison may be carefully tried. This consists in first scraping the nail and applying on lint under oil silk a solution (No. 1) of *liquor potassæ* and *aq. distil.*, each half an ounce, and *potass. iodid.*, thirty grains, to the diseased part for fifteen minutes; it is then removed and immediately followed by dressing the parts in the same manner with a solution (No. 2) of *hydrarg. perchlor.*, four grains, *spir. vini. rect.*, and *aq. distil.*, each half an ounce, which is to be worn for twenty-four hours. The whole process is to be repeated until a cure is effected. When the adjacent skin peels and the parts become tender, the hyposulphite of soda solution may be substituted for the former method until the skin heals. The *Röntgen rays*, used carefully, have performed the same work as the last-mentioned elaborate treatment, in two cases of onychomycosis treated by the editor.

Tinea tonsurans is by no means easy to cure, because an effective parasiticide cannot be made to penetrate readily into the deeper follicular recesses occupied by the parasite. Relapses are common even after apparent cure; therefore treatment must be persevered with for a long time after diseased hairs or fungus elements cease to be found. When the disease is of short duration, superficial, or occurs in infants, the parasiticides suggested for *tinea circinata* may be employed. As a rule the hair should be cut short over and for about one inch around the affected area. The parts should be then thoroughly freed from scales by washing with soap and alcohol. I prefer salicylic acid soap and alcohol as the most effective in removing the scales and the outer corneous epithelia. Immediately following the cleansing and drying of the scalp, some antiparasitic should be well rubbed in or otherwise applied if not in ointment form; choice of strength and form of application should depend on the age of the patient, extent and intensity of the disease. The same may be said of epilation, as it is never free from pain, and, therefore, can seldom be practiced with young children. Neither is it as effective as in *favus*, because the brittleness of the hairs causes them to easily break off on traction, and yet in deep-seated ringworm of the scalp extraction of the diseased hairs promotes cure to a considerable degree. When epilation is deemed important the previous use of *oleate of copper* (one part to eight of lard more or less, as found well borne) for a few days renders extraction much easier and less painful; in fact, the hair sometimes falls out spontaneously after the use of this para-

siticide. Its conspicuous color is about its only drawback, but as a cap lined with oiled paper should always be worn during treatment, this objection is largely met. The skin can be made less sensitive to hair extraction also by application of a solution of glycerine and *carbolic acid* ten to twenty-five per cent. Epilation forceps are most convenient for extraction of the hairs, which should be performed each day over a space of one-fourth inch to two inches according to the number of hairs or the endurance of the patient. The *Röntgen rays* may be used to remove the hair, as suggested in the treatment of favus. In older children or young people the plan recommended by Crocker will be found to possess several advantages, especially for circumscribed patches. The affected part and slightly beyond is first cleansed and shaved, and then the whole shaven surface is painted over with a ten per cent. *salicylic acid* collodion. The painting is repeated daily for a week, when the accumulated cover of collodion is raised up at one side with forceps and carefully peeled off, bringing the attached hairs with it. The surface can be shaved again and the collodion applied for another week or ten days, and then removed as before. If any breaks are found in the surface of the epidermis thus uncovered, a mild parasiticide ointment should be applied for a few days until healing occurs, before resuming the painting with collodion. While the removal of the latter is somewhat painful it is usually well borne, and by snipping off some apparently sound hairs attached to the collodion underneath as the latter is lifted off, this may be somewhat lessened. In cases to which this method is adapted it effectually renders the patch non-contagious by sealing it up, at the same time that it deprives the parasite of oxygen and moisture from the air on which it is in a measure dependent. It is also cleanly and requires the minimum of attention in the interval between removals of the artificial crusts. Three series of renewals of this collodion, lasting six to ten days each, have proved efficient in my hands. *Formalin*, 1 to 1000 of water, or even a weaker solution, is sometimes an efficient application in some cases, and has cured when kerion was present. For cases which cannot be looked after closely or in disseminated forms, especially in younger children, *sulphur* in a suitable form is a safe anti-parasitic. Its penetration may be facilitated by using lanolin and oil as a vehicle; sulphur sublimate, two to three drachms, to lanolin and olive oil, each half an ounce, is a usual combination. This should be well rubbed in twice daily. *Carbolic acid* is sometimes combined with sulphur in the proportion of half a drachm to the ounce of ointment. In disseminated varieties of tinea tonsurans or to apply to non-affected parts of the scalp as a preventive while other applications are made to the diseased areas, carbolic acid can be used once or twice daily in the proportion of thirty to forty drops to an ounce of glycerine. *Boro-glyceride*, fifty per cent. solution, or slightly more dilute, may be employed in the same way. *Salicylic acid*, fifteen to twenty grains to the ounce, *thymol*, thirty to sixty grains to the ounce, or *menthol* in like proportions dissolved in either alcohol, ether or chloroform, or in equal parts of each, are efficient applications in the early or superficial stages of ringworm of the scalp. When employed, cleansing with soap and water may be

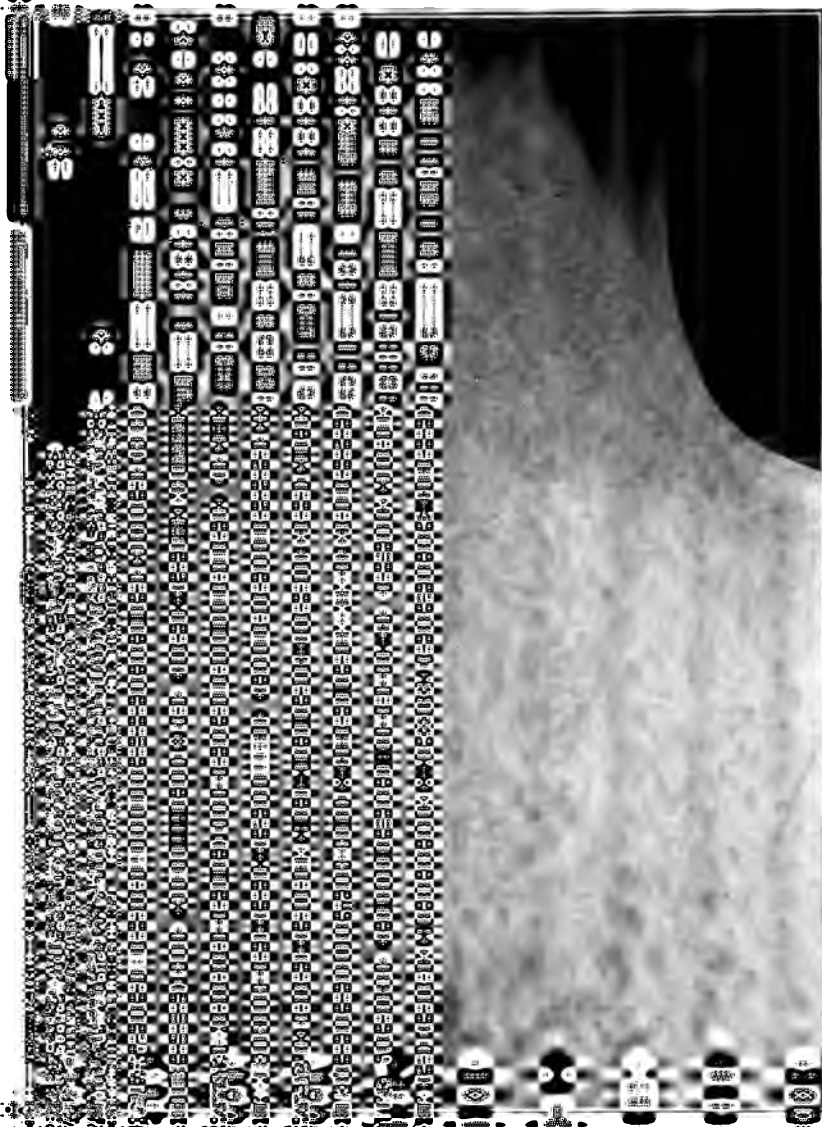
omitted, and oily applications should not be used at the same time. According to Malcolm Morris, the use of the spirit and ether solutions (particularly the salicylic) possesses several advantages: they dissolve fatty matter, loosen the corneous epithelia and hairs, dehydrate the tissues and directly attack the fungus. With one of the above solutions a quick cure may be often made of a superficial ringworm of the scalp, but they penetrate into the tissues to only a slight degree. The author has supplemented the use of a solution containing twenty grains of *salicylic acid* to an ounce of equal parts of alcohol and ether by painting the affected areas with tincture of iodine, applying vaseline to all portions of the scalp and covering all with two or three layers of glazed or oiled paper, something after the manner of Vidal. In the single trial of this method the result was a rapid cure. Theoretically, it meets most requirements of local antiparasitic treatment: the first part of application perfectly cleans and dehydrates the surface tissue, the second penetrates within, while the last, together with the closely fitting paper, effectually excludes the air, with the further advantage that it can be freshly renewed each day, including new layers of impermeable paper. Vidal who emphasized the fact that the trichophyton fungus is aërobic, and that therefore exclusion of the air is an important aid in its destruction, first cleansed the scalp with turpentine (in place of the salicylic acid solution) before applying iodine, etc. The dressing was renewed twice daily, and he has reported very satisfactory results from his method.

Mercurial preparations are sometimes advised for limited patches which tend to persist; of these the *oleate* of mercury is probably the best in five to fifteen per cent. strength in lanolin oil, as it has good penetrating power. The *bichloride* in two to four grains to an ounce of lard, or in solution in water or alcohol, is said to be effective. Ointment of *ammoniated* mercury is better adapted for young children, but all mercurial preparations should be used with caution; and only on circumscribed areas, for fear of producing salivation. In fact, no application should be employed in too concentrated form at first. The scrofulous in particular are very susceptible to the irritating qualities of external agents. In some of these lighter cases *boric acid* in ten per cent. ointment may be sufficient, and in more severe types of the disease a saturated solution of boric acid in twenty parts of alcohol to five parts of ether, as recommended by Cavafy, may be applied three or four times daily, the scalp being thoroughly cleansed once a day with soap and hot water. If kerion exists it usually needs only the milder applications. Crocker states that he removes the loose hairs and obtains uniformly good results from the following combination: Sulphur, two; carbolic acid, one; adipis, sixteen parts. From the apparent tendency of kerion to cure itself the production of artificial kerion with applications of *croton oil* has been advised in obstinate cases, or when a more rapid cure is important. One part of croton oil to two to ten of olive oil applied to a small area of the scalp at a time produces in a day or two a pustular folliculitis with loosening of the hairs, which may be extracted, the surface cleansed and treated with boric acid or other mild antiparasitic ointment. *Electrolysis* may be used as an adjunct to this treatment.

There have been numerous applications proposed and recommended for tinea tonsurans other than those mentioned. Of the latter those which have been verified by personal experience have been referred to more in detail. Certain precautions should be taken in all cases unless an occlusion (collodion) dressing is employed; the head should be kept constantly covered with a cap or closely fitting hood lined with paper, which can be burned up and renewed each day. Soap and water should only be employed when needed for cleanliness, usually one to three times a week, and often alcohol or ether can be substituted for water with advantage. The whole surface of the scalp may be treated with a mild parasiticide such as carbolized glycerine or boro-glyceride once a day to prevent new foci of infection, and for the same reason the hair should not be brushed; as thus the conidia might be spread about over the scalp.

Sabouraud and Noire reported in 1904 upon their experiences with *radiotherapy* as used in the Hospital St. Louis. Their formula is as follows: "To cure a patch of ringworm of the scalp by the X-ray, place the patch at a distance of fifteen centimetres from the centre of the focus tube, and place at the same time a dish of platino-cyanide of barium paper, eight centimetres from the centre of the tube. When this disc has taken the color corresponding to the tint 'B' of Sabouraud's radiometer, the operation is terminated." After the seventh daily treatment, slight erythema appears, which gives way to a faint pigmentation. After two weeks' time the hair falls out and ointment of oil of cade is applied at night, followed by shampooing in the morning and the application of a weak solution of tincture of iodine. The great advantage that this method presents in institutional work is the economy of time. Whereas, two years was formerly the average time of treatment, three months now suffices.

Tinea barbæ requires much the same method of treatment as tinea tonsurans, except the stronger applications are not commonly needed, and epilation is even more essential to a satisfactory result. Extraction of the loosened hairs is not painful, and should be done over a small area daily just before the application of an antiparasitic. Highly colored or disfiguring combinations should not be used upon the face unless the patient is in seclusion. Neither should poulticing or puncture of the lesions be practiced; the first stimulates the growth of the fungus, and the last is unnecessary, because extraction of the hair gives sufficient exit for the semi-fluid contents. The beard should be kept closely cut, crusts, if any, softened with applications of oil, and then the surface thoroughly cleansed with alcohol and soap, preferably the salicylic acid soap, which can be used on the non-affected region of the bearded part of the face as well as a preventive. Epilation having been performed over a square inch or more, choice may be made of one of the following for immediate application: A saturated solution of *hyposulphite of soda*; *bichloride of mercury*, two grains, to an ounce of cologne or alcohol, and half a drachm of glycerine; *thymol*, one, chloroform, three, and sweet oil five drachms; fifty per cent. *boro-glyceride* solution; *resorcin* or *salicylic acid*, grains forty to sixty, in lanolin and olive



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oil, each half an ounce. Thoroughly applied night and morning the outward part of the disease is speedily improved, but long perseverance is required to prevent relapses and effect a complete cure of well-marked cases. The parasiticide can be used more freely at night and less freely by day, or for the latter period impalpable *boric acid* or *nosophen* powder may be dusted over the parts. Cases that tend to recur may be effectively treated with the *Röntgen rays*. Treatments of four to ten minutes' duration, twice weekly for three weeks, will generally accomplish the end. In kerion of the beard, the editor has seen rapid resolution and healing follow five treatments with the X-rays.

The internal treatment of all forms of ringworm is important, and to be based on general and local conditions found in each case. As the result of considerable observation I am convinced that the disease is materially shortened under the influence of indicated drugs, which probably act to stimulate nutrition and resistance of the surface tissues. See indications for *Bary. carb.*, *Graph.*, *Kali bichrom.*, *K. carb.*, *K. sulph.*, *Lyc.*, *Merc. biniod.*, *Mez.*, *Nat. mur.*, *Phos.*, *Phyto.*, *Sepia*, *Sul.*, *Tellurium*.

TINEA VERSICOLOR

(*Chromophytosis*; *Pityriasis versicolor*; *Mycosis microsporina*; *Dermatomyco-sis furfuracea*.)

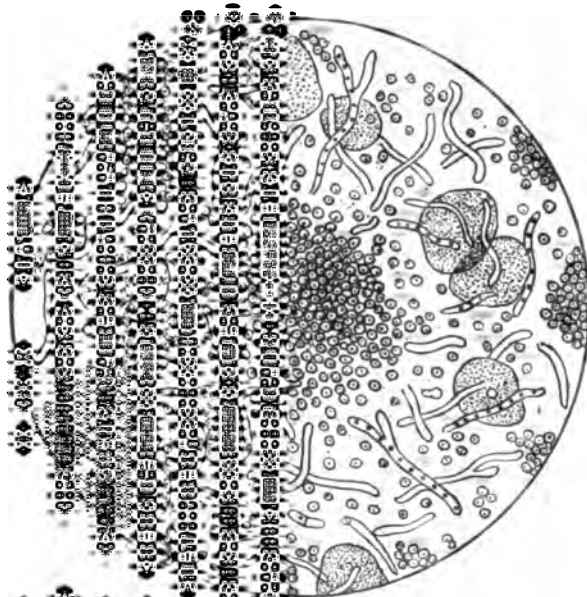
DEFINITION.—A parasitic affection of the skin, due to the presence of a vegetable fungus and manifested by the occurrence of irregular, variously sized, yellowish-brown patches, usually situated upon the trunk.

This is one of the less common diseases of the skin, of a rather long duration, owing probably to its not being recognized, or to neglect of proper treatment. Most cases which have come under the author's observation have had a protracted clinical history, apparently for the reasons stated.

SYMPTOMS.—The disease begins in pin-head to pea-sized, roundish macules, scattered irregularly over the region involved. The spots are yellowish in color, well defined, usually scaly, which can be made more apparent by rubbing the affected surface; the smaller lesions may enlarge, and coalesce into larger, irregular map-like patches, sometimes of wide dimension. They are commonly dry unless the perspiration is active, and then occasionally have an oily feel to touch; they are generally unattended with any subjective symptoms, though itching in some degree may be experienced by the patient when warm. Practically tinea versicolor is an affection of the trunk, most frequently of the anterior surface of the chest, but not uncommon on the back and abdomen, sometimes extending out upon the arms, up onto the neck, down upon the buttocks, onto the groin, and onto the inner surface of the thighs. According to Ziemssen, the disease is of frequent occurrence in men in the latter location where the scrotum comes in contact with the skin of the thighs. One case of chromophytosis has been reported as occurring on the face, though the fungus

VERSICOLOR

le scalp. It is rarely seen on the upper
in a woman who wore her hair low down
had extended from the back over nearly
ek to back of the ears and onto the scalp,
ie. This woman stated that the disease
n for nine years and on the neck for six
development on the neck for a longer
st. In a congenial soil of accumulated
and extend rapidly its area of occupation.
untreated, it may last indefinitely. One
st visit, exhibited large patches of tinea
front from the neck to the pubic region,



Trichophyton furfur (x about 600; diagrammatic).

have a clear history of eighteen years' dura-
tion, and, at first, a red, itchy
and inflamed area, which gradually
became a large, well-defined, and
to some extent, a plaque, with
red, scaly, and sometimes
since is a well-defined, and
son, not. The a person who
has been with the disease for
es a condition of

skin favorable to the growth of the fungus must pre-exist, though apparently unconnected with lack of care of the skin or the general health. In fact, the disease is most common between twenty and thirty-five, a period of life when physical vigor is above the average, and it is rare in the extremes of age. It is said to occur more often in the consumptive and in those who perspire freely, two conditions not infrequently related to each other; but whether this seemingly etiological bearing on the disease in question be direct or incidental to a general or local derangement of nutrition is problematical. Dyspepsia and seborrhœa have also been named as predisposing causes. The disease may occur in any climate, but is most frequent in warmer latitudes. It is located in the corneous layer of the epidermis, where the causal element, a vegetable mould, is found. This parasite was discovered by Eichstedt in 1846 and named by Robin *microsporon furur*. For microscopical examination scales scraped from a patch may be first treated with ether to dissolve out the fat, then moistened with dilute liquor potassæ and flattened out on the glass slide. Both the spores and threads are stained more readily by eosin and methyl-violet than those of ringworm or favus. Under the microscope the spores are found to be larger than those of ringworm, round and nearly uniform in size, and more or less grouped in grape-like bunches. The mycelia are quite numerous, rather short and generally unbranched, but often interlacing and connecting different groups of conidia. These contain yellowish nuclei which possess strong refracting power, and are supposed to produce the color of the lesion. With removal of the superficial corneous cells this discoloration disappears, leaving the surface normal or slightly reddened.

DIAGNOSIS.—The location, as a rule, on the trunk, of variously shaped and sized patches of yellowish discoloration, slightly scaly, and which can be made to almost if not quite disappear at any point by scraping with a knife, are together pretty distinctive of tinea versicolor, and in case of doubt should lead to microscopical examination of the scales.

It might be confounded with chloasma, erythrasma, seborrhœic dermatitis, pityriasis rosea, macular syphilide and vitiligo.

Chloasma occurs on the face chiefly where tinea versicolor almost never appears; it is not scaly, cannot be removed by scraping and contains no fungus elements. *Erythrasma* occurs on the moist regions of the skin, in darker patches, and the organisms found in its lesions are very much smaller than the fungus of tinea versicolor. *Seborrhœic dermatitis* in its evolution may show in yellowish colored patches, but it is not usually confined to the trunk, seldom merges into widely extended yellowish patches as seen in tinea versicolor, the scales are fatty and larger, and the microscope would not reveal the presence of the conidia and mycelia of the latter. *Pityriasis rosea* runs an acute course, is not commonly limited to the trunk, has silvery scales, and the patches only become slightly yellowish as it is fading away. The *macular syphilide*, though of a light yellowish-brown color as tinea versicolor, occurs in discrete, round spots, which may be found on the face and limbs as well as upon the trunk, and usually in association with other signs of syphilis; moreover, the maculations

are devoid of scales and fungi. The *vittiligo* lesion, due to loss of pigment, is round and the contiguous pigmented border concave, while the border of discoloration in *tinea versicolor* is convex and the scaliness and other features of the surface are absent in *vittiligo*.

The PROGNOSIS under sufficient and continued treatment is always good.

TREATMENT.—Almost any simple parasiticide thoroughly and persistently applied will cure *tinea versicolor*. Even mechanical removal of the outer corneous layers of epithelial cells by frictions with pumice stone and soft soap is effectual; it is wiser, however, to use an antiparasitic. Nothing is better as a routine prescription for all cases than *hyposulphite of soda* in saturated solution in water. The skin should be well scrubbed with warm water and soap, dried, and the sodium hyposulphite lotion thoroughly rubbed in with a piece of coarse towelling or flannel. This should be repeated once or twice daily until all evidence of the disease is removed, which may take from one to two weeks, rarely longer. Thereafter, for at least a month, the treatment should be occasionally renewed, and for some time longer strict watch of the skin should be kept to detect and stamp out any tendency to relapse. Most fresh outbreaks after apparent cures are due to neglect of these precautions. When the surface involved is not large, painting the patches with tincture of iodine, as advised for *tinea circinata*, is an effective and quick method of cure. Probably use of any of the mild parasiticides efficient in superficial ringworm would prove satisfactory. In all cases the underclothing should be baked, boiled, or destroyed, to prevent reinfection from that source. Internal remedies may be given as indicated. See *Kali carb.*, *Kali sulph.*, *Nat. arsenicum*.

TINEA IMBRICATA

(*Tokelau or Bowditch Island ringworm; Chinese, India or Burmese ringworm; La Pita; Gune; Cascadöe; Herpes desquamans; Malabar itch.*)

DEFINITION.—A tropical contagious affection, due to a vegetable fungus, and characterized by the development in the skin of concentrically placed, scaly rings.

Fox, from observation of the disease in the Gilbert Islands, first described it in 1844. Manson, who observed cases in China and other sections of Eastern Asia, gave to it the name *tinea imbricata* and proved by inoculations with the fungus that it always produced the same disease. It is chiefly from his article in the *British Journal of Dermatology*, January, 1892, p. 5, that the material for the following brief description was obtained.

SYMPTOMS.—As shown by experimental inoculations, the disease has a period of incubation of about nine days. Near the end of this time the fungus, which has meanwhile developed deep in the epidermis as a brownish mass, produces a round elevation of the skin. When this has reached a diameter of about three-eighths of an inch the central part of the patch gives way

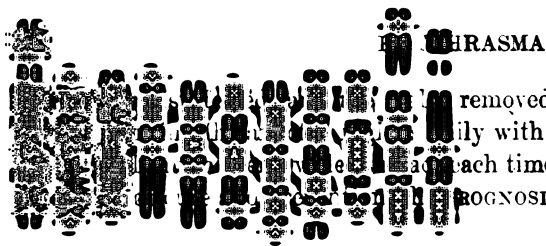
and is shed, leaving an attached rim or ring next to the sound skin. The epidermis and fungi in the centre may be entirely thrown off or dislodged by friction, exposing the pale corium underneath. The fungus growth continues to advance at the periphery, showing through the epidermis a brownish and slightly elevated rim about one-sixteenth of an inch wide. When the whole ring has attained about a half inch in diameter a brownish patch is observed to be again forming in its centre; this in turn bursts through the young epidermis and forms in the same manner as before a second ring inside the first. Both rings continuing to advance outwardly and additional rings being continuously evolved at the centre, an endless series of concentric rings is produced. Unchecked it may thus invade a whole region or extend over nearly the entire body except the scalp. The latter is very rarely attacked and then the fungus does not invade the hair follicles. The average rate of extension in a single patch is about three-eighths of an inch a week, and when fully developed the rings may be about one-fourth of an inch apart and covered with scales, which are free at their outer edge and somewhat curled up. The surface appearance has been likened to watered silk. In advanced cases the epidermic scales may become large, thick and hard, looking as though the skin had been plastered with clay. The scales vary in size up to a half inch in surface diameter. After desquamation has occurred circles or sinuous lines of pigmentation are seen, which may persist and sometimes remain permanently.

The most suffering to the patient arises from the intense local itching and heat, and from the disfigurement when a large area of skin is involved. The general health is never affected and the lesions very rarely appear on any part of the face or head.

ETIOLOGY AND PATHOLOGY.—The disease is endemic in some tropical regions, evidently contagious, and attacks both sexes, at all ages, but children most often. Manson believes that it is dependent on some peculiarity of climate for its development. This observer and Königer were the first to establish the parasitic nature of the disease and its essential cause a fungus growth in and under the epidermis. This parasite resembles the fungus of *tinea circinata*, but is much more abundant; the spores may greatly exceed the mycelia in number; and while the former are about the same size as the spores of *tinea circinata*, they differ in shape, as a rule, from the globular form of the latter in a varying degree to oval, rectangular or irregular forms. The mycelial filaments are long, straight; or slightly curved. The fungus does not penetrate beyond the mucous layer of the epidermis and does not enter the hair follicle. Examination may be made by treating the scales with liquor potassæ.

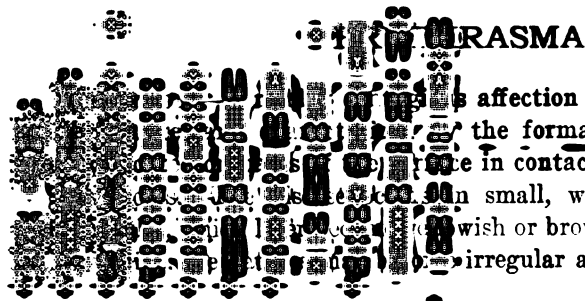
DIAGNOSIS.—This presents no obstacle in countries where the disease is endemic. Its course of development by successive rings inside of the preceding and outwardly advancing rings and the non-involvement of the hair follicles easily distinguish it from *ringworm* of the body, which commonly clears in the centre and only develops at the periphery. The microscope will aid.

TREATMENT.—The methods recommended are practically the same as for the more severe forms of *tinea circinata*. The clothing should be destroyed or



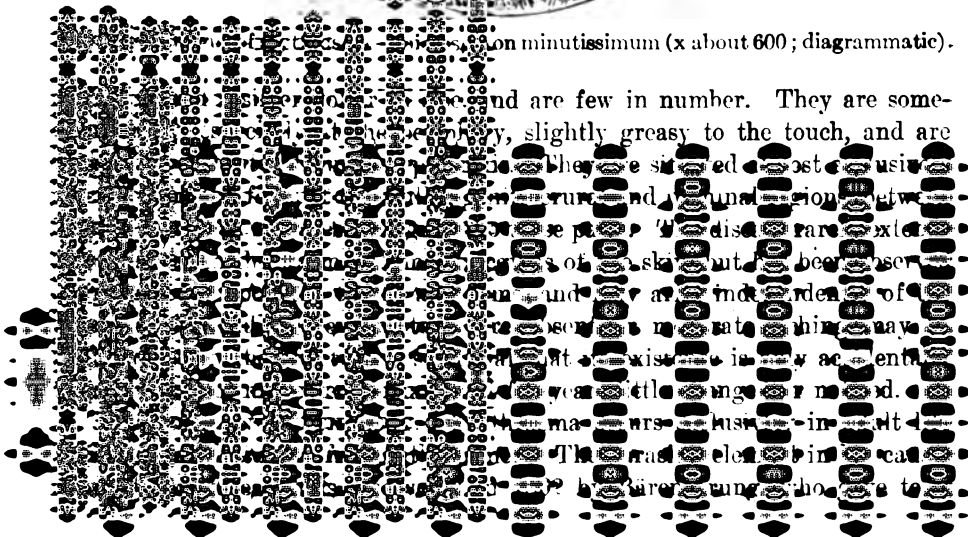
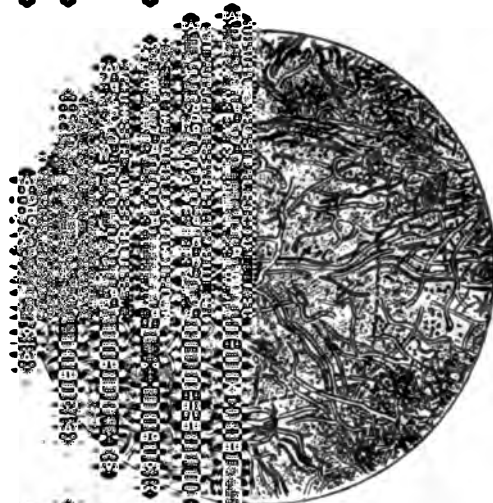
DERMATOPHYTES

removed with alkaline baths. Manson
 ily with strong iodine liniment, extend-
 e each time. Under this or other appropri-
 ROGNOSIS is favorable.



DERMATOPHYTES

is affection of the skin due to a vege-
 the formation of brownish patches,
 e in contact.
 n small, well-defined erythematous or
 wish or brown in color. At first round-
 irregular and very slowly increase, but



on minutissimum (x about 600; diagrammatic).

nd are few in number. They are some-
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the name of *microsporon minutissimum*. Unna says that this form in distinction to the microsporon shows no isolated collections of spores, but they are irregularly scattered singly and in collections between hyphæ or mycelia, and are very minute. The parasite grows in the epidermis, but does not loosen the horny layer as a whole; when that layer is removed on plaster the stained fungus shows as a dense felt-like collection of very fine, twisted and winding mycelia. A power of five or six hundred diameters is required to clearly see the organism. Michèle claims to have reproduced the disease in the inguino-scrotal region by inoculation with a cultivation of the fungus, and to have found the leptothrix in cases of supposed erythrasma.

DIAGNOSIS.—Even without the microscope little difficulty will be found in distinguishing erythrasma from other affections of the surface. *Eczema marginatum* has the same sites of preference, but the latter is distinctly inflammatory in type with consequent well-marked local disturbance, an elevated and advancing border, and often it is acute in its development, all unlike erythrasma. *Tinea versicolor* occurs as a rule on the trunk and rarely extends to the common sites of erythrasma, which is redder in color, but shows less disturbance of the horny epithelia and cannot be readily rubbed away. *Pityriasis rosea* would scarcely be confounded with erythrasma from its wider distribution, short course, etc., and *chloasma*, due entirely to increase of pigment, is still less likely to be mistaken for the disease in question. Both of the last-named diseases are non-parasitic, and in all cases of doubt a microscopic examination will determine as to the presence of a parasite, and, if found, as to its diagnostic significance.

TREATMENT.—The same measures of cure and prevention of relapse as suggested for tinea versicolor are adapted for use in erythrasma. *Kali sulph.* may be indicated to improve the tone of the skin.

DHOBIE ITCH

(*Manila itch; Crutch itch; Dermatitis mycotica.*)

Various epiphytic diseases of the skin may be included under this name. They all occur in tropical climates including the Philippine Islands, and particular species are known to be caused by the trichophyton, microsporon minutissimum, and microsporon furur, while others are bacterial, a form of pemphigus contagiosa. In tropical countries, the resulting dermatitis may be severe and may become pustular from bacterial infection. Of the ten cases of so-called Manila itch seen by the editor all gave clear histories of direct or indirect contagion from persons formerly resident or now residing in the Philippine Islands. In a majority of these cases, the abdomen and the legs were the main parts affected with a papulo-pustular eruption, which itched incessantly, and on disappearing left pigmented spots.

TREATMENT.—Parasitocides are always required. *Linimentum iodi*, tinc-

ture of the leaves of *cassia lata*, *chrysophanic acid* and *mercuric chloride* (1:1000) have all been recommended. Cases treated in temperate climates need less severe treatment. Equal parts of *sulphur* and *zinc oxide* ointments, to which *resorcin* in five per cent. strength has been added, is usually efficacious. Internal remedies are similar to those recommended under ringworm. Prophylaxis should not be neglected.

BLASTOMYCOSIS

(*Blastomycetic dermatitis; Saccharomycosis hominis.*)

The records of about fifty cases in which the nature of this affection has been noted are available for study, and it is to American investigators that we owe most of our knowledge of this rare parasitic disease. Blastomycosis may be described as chronic, inflammatory and infectious. It first appears as a small papule which may remain unnoticed for months, or the initial lesion may be a papulo-pustule which in time becomes crusted. Enlargement takes place peripherally and a sharply outlined elevated verrucous patch is formed; the base of which is bathed in a sero-purulent secretion and presents a sloping border in which are minute deeply seated abscesses. This border is smooth, red to purplish-red in color, and from one-eighth to three-eighths of an inch in width. An individual patch may take months to attain a diameter of one inch and may remain indolent for months or years afterwards. Usually other patches develop after the original one has existed for some weeks. Healing may be spontaneous or gradual; the centre often clearing up as the disease ends at the periphery. The flattening and gradual disappearance of the papillary projections, the diminution of the serous discharge, decrease in number of the miliary abscesses, and the formation of hypertrophic scar-like tissue which eventually becomes the characteristic soft, supple, pinkish-white cicatrix, are the steps in the resolution of a patch. Regions which are most accessible to infection, as the face, hands and arms, are more commonly involved. The majority of patients are in good general health and have few subjective sensations. Systemic infection may take place and give rise to pyæmia, subcutaneous abscesses and bone necrosis.

ETIOLOGY.—Sex, occupation, nativity and habits do not seem to exert any influence. About half of the cases have appeared after the fortieth year. Blastomycetic infection may be secondary to lesions of other diseases or to trauma, but the sole cause is a local infection with the fungus, pathogenic to each individual case. The infectious nature of the disease is proven further by the successful inoculation of animals.

PATHOLOGY.—The characteristic miliary abscesses are found in all parts of the hyperplastic epithelium, and may break through to the surface. The epidermis is separated from the corium by a distinct layer of columnar cells; the rete cells are large and swollen, the prickles being conspicuous; premature

cornification occurs in groups of cells; the corium is the seat of a variety of inflammatory changes including dense infiltration. The *blastomycetes* may be demonstrated by subjecting a section of the diseased tissue or some of the purulent discharge to a strong solution of potassium hydroxide. The parasite is then seen to be a round, oval, or irregular body having a well-defined capsule, and a granular protoplasm. Mycelium has not been found in the abscesses or in the tissues, but the blastomycetes may be obtained in pure culture from the minute abscesses in the borders of the lesions.

DIAGNOSIS.—*Verrucous tuberculosis* may so closely resemble this disease that a microscopic examination will be found necessary. Other conditions which may need to be differentiated are lupus vulgaris and other cutaneous manifestations of tuberculosis, the vegetating forms of syphilis, and protozoan infection which is probably a form of blastomycosis.

PROGNOSIS.—This disease should be completely cured under careful and prolonged treatment. Recurrences are common, however. Cases with systemic involvement usually prove fatal.

TREATMENT.—Cleansing and antiseptic lotions are always indicated. Complete *excision* and *curettage* have likewise been of service, but the most successful treatment appears to be large doses of the *iodide of potassium* plus a few exposures to the *Röntgen rays*. The *tissue salts* might be studied in connection with this disease and its internal treatment.

MYRINGOMYCOSIS

(*Otomycosis*.)

The *aspergillus* (*niger*, *flavus*, *fumigatus*) may develop in the external ear when the aural epidermis has been macerated or otherwise diseased. Inspection will show in the canal white masses covered with gray, yellow, green, brown or black spots. Microscopic examination reveals spores and a few flower-like masses which are composed of the sporangium of the fruit-capsule of *aspergillus*. Deafness, tinnitus aurium, otorrhoea and eczematous inflammations are usually present in varying intensity. Löwenberg recommends for the destruction of this mould the application of dilute alcohol followed by powdered boric acid.

PINTO DISEASE

(*Mal del pinto*; *Pinta disease*; *Spotted sickness*, etc.)

DEFINITION.—A disease of the tropics, due to a vegetable fungus, characterized by the appearance on the skin of various shades of discoloration, and attended with itching and desquamation.

This peculiar affection is limited in geographical distribution to the equatorial latitudes of Mexico, Central and South America, not extending beyond 27° and 28° north or south. It is endemic in Mexico and is said to have existed there in the time of Cortes, and to have been mentioned by the Aztecs in their prayers for centuries. The first authentic record of it was made in the *Encyclopedia* of Polanco of Mexico, in 1760.

The disease appears on the skin in the form of scaly spots, of various sizes, shapes, numbers and colors. It may involve from a small area up to a general distribution over the whole body, except the palms and soles. It begins as a rule on exposed parts, such as the extremities or face. Its frequency on the face in Venezuela and Granada gave rise to the name *caraate* or *cute*, i.e., "Look at his face." The lesions are usually bilateral, seldom symmetrical, and only slightly raised above the surface. They grow by peripheral extension and may remain discrete or coalesce with neighboring lesions while new spots continue to appear. In shape the patches thus formed may be round or irregular, sharply defined or merging into the surrounding skin in shades of gray, blue, black, red or white, which do not disappear on pressure. These variations in color depend somewhat on the depth of the skin affected by the disease. In a single case any or all colors may successively appear at some stage and mingle together; in another case only one shade may show, but whether in single or multiple colors the individual spot remains the same throughout the course of the disease. Occasionally, in the advanced stage, tubercle-like lesions may appear. The superficial type of the disease does not penetrate into the mucous layer of the epidermis, and when it disappears under treatment leaves no trace behind, though the blue form may have presented previously the appearance of indelible gunpowder stains of the skin. On the other hand, the red and white varieties may involve the rete and the entire corium; the red form sometimes resulting in ulceration, and the white form presenting a hard, scar-like aspect attended with diminished sensation. When hairy parts are attacked, the hair loses its color, becomes thin and falls out. Scaliness is furfuraceous at first, but later the scales may become larger and the surface dry and rough, and sometimes greasy or humid. The itching is generally in direct ratio to the scaliness and is often intense, especially at night; the odor of the skin is offensive and has been compared to dirty, mouldy linen and to cat's urine. Though the disease may become slowly or rapidly extensive and involve nearly the entire surface of the body and show no tendency to recovery if left to itself, constitutional symptoms are absent and inflammation seldom occurs.

ETIOLOGY AND PATHOLOGY.—Numerous cases of communication from one person to another seem to establish the contagious nature of pinto disease. It occurs in both sexes and at all ages except in young infants. Moisture as well as warmth appears essential to its development, as it does not originate at high elevations. An existing irritation of the skin or dermatitis, especially amid unhygienic surroundings, favors its onset. The native or colored races are much more susceptible to the disease than white people. The efficient causal

factor has been shown to be a cryptogamous fungus of the aspergillus family, which appears under the microscope as round or oval spores attached to branched and tapering mycelia filaments. These grow in the corneous layers of the epidermis in the superficial forms of the disorder, and penetrate the rete mucosum and sometimes into the corium in the deeper varieties. Permanent whitening of the surface tissues may remain to mark the sites of the latter. There is some doubt as to the parasitic nature of the blue variety. Lier, from his investigations of the disease among Mexicans, concluded that the blue form was an anomaly of pigmentation, and all attempts to reproduce this form of the disease by inoculation on himself and others failed. It has not been determined whether the change in color is due to variations in the fungus or to pigmentation of the spores and mycelia. Some other unidentified discolorations of the skin which have been observed in the tropics may or may not be allied to the disease in question. An affection known in Surinam as *lota* is said to resemble pinto disease.

DIAGNOSIS.—The peculiar objective features, odor and absence of constitutional symptoms in connection with its endemic type in certain tropical regions makes mal del pinto easy to recognize in countries where it prevails.

TREATMENT.—For the superficial forms this is practically the same as for tinea versicolor. In the deeper situated varieties probably some of the more penetrating applications such as naphthol, iodine or chrysarobin would be of greater utility. Relapses must be guarded against as in other allied forms of parasitic disease.

ACTINOMYCOSIS OF THE SKIN

DEFINITION.—A chronic parasitic affection due to the presence of the ray fungus in the subcutaneous or other tissues, which attacks the skin secondarily from within, producing nodular swellings or tumors and numerous fistulous openings on the surface.

Actinomycosis of internal organs is of less rare occurrence than in the skin, but the cutaneous form is probably not so rare as formerly supposed. The disease occurs in some of the lower animals, and Bollinger in 1877 first demonstrated the presence of a fungus in the lesions of the "lumpy jaw" of cattle, which from its gross appearances Harz termed the "ray fungus." Two years after Ponfick established the identity of the disease as it occurred in man and animals, and later Maiocchi described its occurrence in the skin. The fungus gains access to the tissues in nearly all cases through the mouth, most often along a carious tooth, but may find entrance further on in the digestive or respiratory tracts. Very rarely the skin may be affected from without through some break in its surface.

SYMPTOMS.—In the larger proportion of cases the disease is situated in parts contiguous to the mouth and neck, often at the side beneath the jaw, but the hand, foot, leg, scrotum or shoulder may be affected. The onset of the

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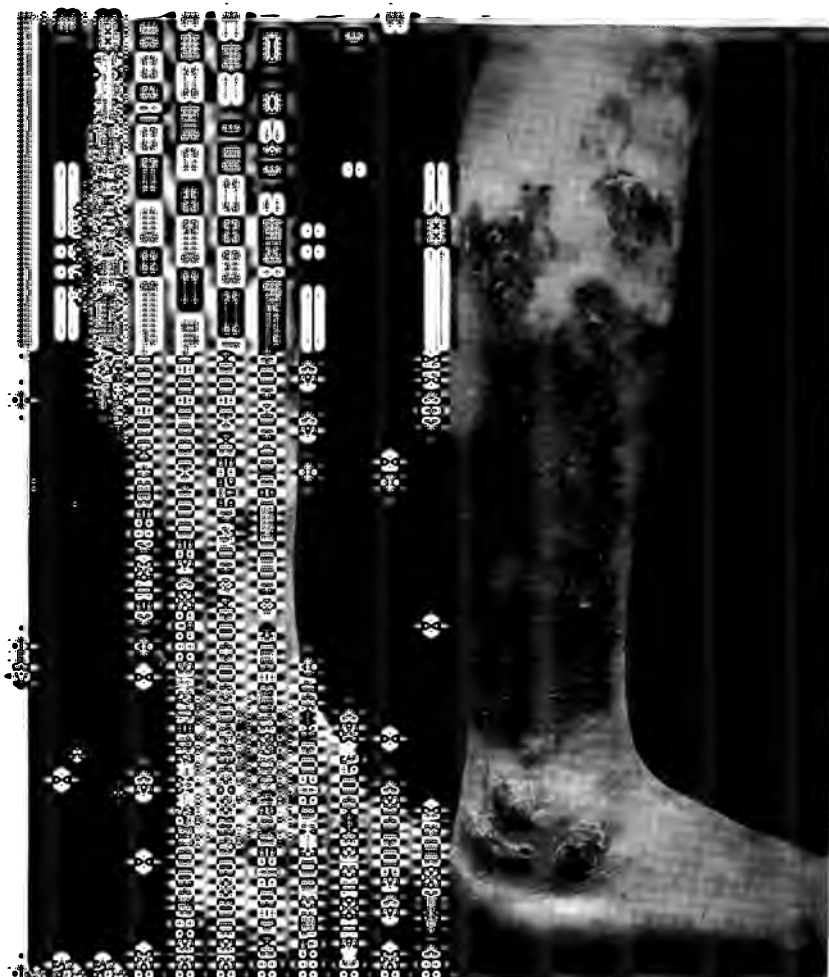
JOHN H. COOPER

PROFESSOR OF POLITICAL SCIENCE

UNIVERSITY OF CHICAGO

CHICAGO, ILL.

1968



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causal identity and relation of the parasite to the disease in both man and animal has been completely established.

The *ray-fungus*, found to compose the yellowish bodies visible to the naked eye in the discharges before mentioned, when pressed between the slide and cover glass (stained by Gram's method), are seen under the microscope to consist of mycelia, which interlace centrally and give off threads which radiate therefrom singly or after dichotomous division, and expand at their distal end into club-shaped enlargements. These club-shaped bodies are thought to be the spores or fructifying parts of the fungus. This organism is found throughout the tumor mass as well as in the discharge. According to Unna, the ray fungus belongs to those organisms which have a sort of chemical attraction for leucocytes and induces suppuration at once; therefore, he excludes the idea of a mixed infection to explain the suppuration in actinomycosis hominis. However, the consensus of opinion is that actinomycosis is produced in the human body by pathogenic micro-organisms, and not by a single specific ray-fungus. Two divisions of the genus actinomyces are now recognized, the acid-resisting and the acid-bleaching types, but the exact pathological being of each is not yet differentiated.

DIAGNOSIS.—After rupture through the skin and discharge from the nodular swelling has taken place, little difficulty ought to be found in recognizing actinomycosis, as the yellowish masses of fungus are always present and can be demonstrated microscopically. While the tumor remains unbroken the disease cannot be always differentiated from sarcoma, carcinoma or scrofuloderma. Though occupation about animals, in or about the stables, etc., a carious tooth previous to the growth of the tumor and absence of glandular enlargement would be suggestive of actinomycosis.

Sarcoma involving the skin is more likely to be painful to motion or pressure than actinomycosis tumors, less apt to break down, and when this does occur takes the form more often of a single central slough. *Carcinoma* is commonly painful, and the lymphatic glands become involved sooner or later. *Scrofuloderma* originates chiefly in childhood and youth, and always involves the glands, while actinomycosis usually begins in adult life and does not, as a rule, implicate the glands. In cases of great doubt an exploratory incision might be justifiable to obtain a section of the tumor for examination as to the presence of the fungus. Non-discovery of the parasite, however, cannot be said to be proof positive of the non-existence of actinomycosis. In such a case Legain inoculated the skin of a rabbit with the scrapings from an abscess which gave rise to the growth of a hard nodule containing the ray fungus. Care should be taken not to mistake dental abscess or sinuses for actinomycosis. The absence of the nodular tumors and the communication of the pus cavity with the bone underneath would be significant of the former.

PROGNOSIS.—This may be poor in any case although internal actinomycosis of wide extent has recovered spontaneously. Intestinal involvements are grave. Schlange and others have lately reported good percentages of cures. Prompt and thorough removal of all diseased tissue makes the prognosis more favorable.

TREATMENT.—The surgical and antiparasitic are the methods adapted for the treatment of actinomycosis. *Extirpation* in suitable cases is without doubt the quickest mode of cure; when rupture and discharge has taken place and the case is not favorable for extirpation of the diseased tissues, sinuses and abscess cavities may be opened up, curetted and treated antiseptically. Among antiparasitic measures for inter-tissue treatment of the growths either before or after external rupture, the *electro-chemic* method of Gautier should be mentioned. This consists in inserting two platinum needles into the tumor and passing a current of fifty milliamperes through its substance at the same time that every minute or two a few drops of ten per cent. solution of iodide of potassium is injected into the part. Nascent iodine is set free in the tissues, and the treatment can be kept up in different parts of the growth for about twenty minutes. It is too painful to be employed without an anæsthetic, but most satisfactory results have been reported by Gautier, Darier and Meurier and others. Cases have yielded to the administration of ordinary doses of iodide of potassium, and it is quite possible that injections into the growth of tincture of iodine might be nearly as efficacious as the electro-chemic plan, and could be done without an anæsthetic. Three cases have been observed by the editor; one involving a large portion of both legs (male subject) is receiving *iodide of potassium*, nine to fifteen drops of saturated solution daily, with *calcareo fluorica* 6x as an intercurrent remedy. Hydrogen peroxide in one-third strength is injected twice daily into all openings. Another case (male subject) involving the neck and jaw was cured in three months with the iodide of potassium, and hydrogen peroxide used in the same manner as above mentioned plus the continual use of a wet dressing of the same lotion. The third case, involving the palm of one hand, was cured in two months by means of the peroxide and *hepar sulphur* 3x. This last case (that of a woman) previously had the same condition on the other hand. In all these cases microscopic examinations revealed the ray-fungus in abundance.

Physiological methods to support the system and indicated drugs to give increased tone to the tissues should be selected in each case. *Kali brom.* might be studied in addition to the remedies mentioned above.

MYCETOMA

(*Podelcoma*; *Ulcus grave*; *Madura foot*; *Fungus foot of India*; *Tubercular disease of the foot.*)

DEFINITION.—An endemic affection of the skin and deeper structures, usually confined to the foot, leg or hand, and probably due to a parasitic fungus.

The disease is endemic in India, has never occurred in Europe, and only with extreme rarity in America (five reported cases in North America).

SYMPTOMS.—Beginning insidiously and superficially the disease may show

upon the surface in the shape of swelling, large vesicles, papules, pustules, or tubercle-like elevations, which sooner or later burst and give exit to a thin, sero-purulent or sanious discharge containing at times whitish poppy seed-like granules, caseous particles, or blackish masses which have been compared to fish-roe. The black variety is more common than the pale form, containing only the lighter colored matter in the discharge. In mild cases a single toe or finger may be involved; in other cases, the lesions may be numerous, and sometimes discolorations of the surface in blackish or bluish macules or dots may precede any break in the surface of the skin. Very gradually the disease may progress by a sort of tunneling into the tissues for months or years until the foot, riddled with sinuses extending first into the soft parts of least resistance and then into the periosteum and bones, becomes misshapen and useless. Essentially chronic in its course, the disease may last for twenty or thirty years, but frequently the whole foot may become involved in from two to six years, and perhaps swollen irregularly to two or three times its normal size and weight. The leg or the hand is less commonly attacked, and rarely the scrotum or other parts are affected. Unless arrested by treatment, the disease always tends to increase progressively, involving new tissues in the process of disintegration, until the patient dies from exhaustion or from some intercurrent malady. There is a striking absence of glandular implication, and no case of septic poisoning has been noted from the disease.

ETIOLOGY AND PATHOLOGY.—Mycetoma is endemic in India, and said to be more common among natives who work barefooted in the fields, and to attack males more often than females; it is usually attributed to some injury of the part by puncture with a thorn or splinter, or from a bruise. This mode of origin is supported by the fact that many cases begin on parts most exposed when uncovered to accidental wounds, such as the plantar surface of the toe, between the toes and the palmar surface of the finger or thumb. Yet this origin is not proven, and nearly always the first sign of the disease appears to be some distance under the skin, and located without any relation to a definite point.

The *pathogenic* cause is a fungus, which if not identical with, is closely related to, that of actinomycosis. The latter disease, however, seldom occurs in India where mycetoma is indigenous, and, unlike mycetoma, attacks the internal organs. The actinomyces are brilliantly colored by acid fuchsin, while the fungus found in mycetoma reacts indifferently to it. Vandyke Carter, who first isolated a fungus in the black variety of the disease in 1874, and for whom it was named *chionyphe Carteri*, from further microscopic studies of the lesion believes mycetoma to be a direct form of human actinomycosis. With this opinion Crookshank also agrees, while Hewlett, in 1892, claimed to have demonstrated the presence of the ray fungus elements in the particles contained in the discharge from the pale variety. However the exact class to which the causal parasite of mycetoma belongs has not been determined.

DIAGNOSIS.—A well developed case of mycetoma with sinuses, in the discharge from which can be found the blackish or whitish bodies above named, especially in the country where it is endemic, could hardly be mistaken for any other disease.

TREATMENT.—Early and complete surgical removal of the diseased part is said to be the only effective method of treatment. If confined to narrow limits scraping away the affected tissues may be sufficient, or early amputation of a toe or finger may be necessary, but in the late stages amputation high enough up to certainly include all affected parts is essential to cure. *Kali bichrom.* and *K. brom.* are possible remedies. Iodide of potassium as used in actinomycosis is useless in mycetoma.

IMPETIGO

(*Impetigo simplex; Impetigo sparsa.*)

DEFINITION.—An acute affection of the skin characterized by the appearance successively or in crops of a few discrete, firm, pea to small finger-nail sized, superficially seated pustules.

Many clinical observers doubt the existence of this form apart from impetigo contagiosa, but the type of pustular eruption as described by Dühring is certainly not of rare occurrence, and in its course is unlike the contagious form.

SYMPTOMS.—Occasionally the onset of the eruption is preceded by slight fever, malaise and loss of appetite. The eruption consists at first of small, separated vesico-pustules which are so rapidly transformed into larger pustules that their primary vesicular character is not often observed. When fully formed they vary in size from a split pea to a small cherry, yellowish white in color (sometimes darker from admixture of blood), globular in form, fully distended and appear to rest directly on the surface with or without a hyperæmic areola. They may dry up without breaking or rupture and form honey-like or brownish crusts firmly attached to a slightly moist base; the scabs fall off after a few days, leaving no permanent trace behind. The duration varies with the time in which new lesions continue to appear. Occasionally these occur simultaneously and the course is short. More often they arise in crops or successively for a week or more and the duration of an attack seldom exceeds two or three weeks; but in poorly nourished and neglected children an attack may be aggravated and much prolonged. The eruption is located commonly on the face, hands or fingers of children or young people, less often on the lower extremities and feet, shows no tendency to coalesce and rarely to become grouped, and is never very abundant, seldom exceeding twenty individual lesions, and sometimes only one or two appear. The subjective sensations are never marked by more than slight tension or itching, which leads to picking at rather than scratching the parts.

ETIOLOGY AND PATHOLOGY.—Impetigo is practically a disease of childhood, though occasionally seen upon the hands and fingers of adults. It is more common among the poor and uncleanly, but does appear in clean and apparently healthy children. Probably the instinctive habit in children of touching most

everything with the hands, and with the latter the face, and the same disregard of cleanliness at this age, accounts in a large measure for its more frequent occurrence in young children than in infants or adults. The efficient cause is a mixed infection from *streptococci* and *staphylococci*. Through some slight abrasion these organisms find entrance into the skin and set up an inflammation in the papillary layer of the corium, forming a small superficial abscess covered only by the epidermis. The lesions contain, beside pus cocci, pus corpuscles, epithelial cells, a few red blood corpuscles and broken down cellular matter.

DIAGNOSIS.—The distinguishing features of impetigo lesions are their pustular type from early beginning to the end, comparatively few number, size, elevation, isolation, firmness and termination in thickish crusts, without producing any marked local subjective or constitutional symptoms during their course.

From *impetigo contagiosa* it can be differentiated by the contagiousness of the latter, its beginning as vesicles, vesico-papules or vesico-pustules, which frequently coalesce with or without rupture and dry into friable, wafer-like crusts. From *ecthyma* by the larger flat pustules of the latter, seated on an inflammatory, hard and wider base, drying into bulky, brownish or blackish crusts, beneath which are pit-like erosions, and around all, generally, a well marked areola. Moreover, *ecthyma* is seen ordinarily in anæmic or cachectic adults, while impetigo is commonly a disease of childhood unassociated with any special ill health. *Pustular eczema* with its pinhead and smaller pustules aggregated in patches, often associated with vesicular and papular lesions and attended with infiltration of the skin and positive itching, would hardly be mistaken for the pea-size or larger isolated pustules of impetigo, unattended with infiltration or decided itching. It may be borne in mind, however, that impetigo-like pustules may occur in the course of other pustular diseases of the skin, of which *eczema* is the most common. I have seen impetigo once in association with *varicella*, giving the attending physician a suspicion of the existence of smallpox.

PROGNOSIS.—This is always good; the affection tends to spontaneous recovery, but may be shortened by indicated remedies.

TREATMENT.—There being little tendency for impetigo pustules to rupture or discharge, no local treatment beyond ordinary cleanliness is required. An internal remedy can be easily selected from the character of the eruption and any other symptoms obtainable. *Antimonium tart.* is probably most often indicated. See also *Ant. crud.* and *Cicuta*.

IMPETIGO CONTAGIOSA

(*Impetigo parasitica*; *Porrigo contagiosa*; *Porrigo larvalis*, etc.)

DEFINITION.—An acute contagious inflammation of the skin due to pus inoculation and characterized by the formation of multiple, flat, oval or roundish, split pea sized or larger, usually isolated vesicles, blebs or vesicopustules, which dry up in a few days into yellowish, slightly adherent crusts.

Tilbury Fox first carefully described the disease in 1862, and called attention to its being often *quasi*-epidemic. The latter type has been sometimes described as a form of "epidemic pemphigus."

SYMPTOMS.—The onset of the eruption is occasionally preceded by some febrile disturbance. Erythematous spots or papules soon appear and rapidly become transformed into small vesicles or vesicopustules, which quickly enlarge, become milky or purulent, flat, with a tendency to central depression and sometimes decided umbilication. They vary in size from a split pea to a cherry, and when close together may coalesce and form large irregular patches; they are very superficial, and if broken show a slightly red, eroded and exuding base. Undisturbed they dry up in a few days into wafer-like straw colored crusts which adhere closely to the base. The lesions are seldom surrounded by an areola unless an attack is unusually severe. They are rarely numerous and may comprise only one or two lesions; are most always situated on the face or hands, but may occur on any part of the body and exceptionally on the mucous surfaces of the nose, mouth or conjunctiva. Slight abrasions of the face or hands are likely to be auto-inoculated and new lesions may appear singly or in crops at intervals of a day or two, but as a rule the disease runs its course in one to two weeks. The disease is very contagious, and children in the same family or playmates are frequently inoculated one from another, while adults of the same family often exhibit one or more lesions, particularly on the hands. Very commonly an attack is accompanied by some swelling of the submaxillary glands.

Atypical forms of impetigo contagiosa are not uncommon. Thus they may have unusual locations on the body or be widely scattered, pursuing the usual course otherwise. Or the lesions may be pemphigoid in character and two or three times their average size; this variation seldom occurs except in the epidemic type or so-called "epidemic pemphigus" among children. Occasionally the vesicular stage of the eruption is lacking or so brief as to escape notice, and purulent lesions are present from the beginning like non-contagious impetigo in this one respect, and rarely the tendency to a pustular grade of inflammation may go on to the ecthymatous form of lesion. Even without these marked clinical variations there are many grades of severity and extent of the eruption with corresponding modifications in appearance, but still preserving some characteristic features as to origin, evolution, duration, termination, etc.

All types, typical and atypical, may occur in any one epidemic, as was illus-



IGO CONTAGIOSA

History of many similar outbreaks
 vesicles appeared on the chin
 a few days thick friable crusts com-
 re confined to area depicted, except
 the rest of the body. Current out-
 al, outbreak treatment.

trated in the editor's experience with nearly two hundred cases, occurring during the summer of 1900 in the upper west side of New York City.

ETIOLOGY AND PATHOLOGY.—Impetigo contagiosa is chiefly a disease of early childhood, is much less common after the tenth year, infrequent in adults, and then usually mild and transient in form. While more often seen among the poor and uncleanly, it is not rare among children of the well-to-do classes. Excoriations of the skin incident to scratching from the presence of pediculi, scabies, urticaria, etc., may open the way for inoculation with contagious pus or pus cocci. Likewise may vaccination or other suppurating conditions of the skin, particularly in children, afford the source and favoring conditions for the development of the disease. In some cases no contributing causes are apparent, but slight abrasions of the skin in children are often unnoticed. The disease always rises from infection and is inoculable and auto-inoculable.

There is no reason to doubt that micro-organisms supply the link between the etiology and *pathology* of impetigo contagiosa, and that these germs are the same variety of pus cocci found in the lesions of the non-contagious form. Whether the difference in the two forms can be attributed to some specific quality of the organisms or to a variance in the susceptibility of the skin is undetermined.

DIAGNOSIS.—The diagnostic features of the disease are usually plain enough in simple cases. The isolated vesicular lesions becoming pea-sized, or larger, flat vesico-pustules, unattended with an inflammatory areola, indurated base or much itching, and commonly located in the face or hands, are quite distinctive. A resemblance to varicella, eczema, impetigo, pemphigus or ecthyma may exist.

Varicella lesions are usually more or less disseminated over the trunk as well as on the face, uniform in size, rarely exceeding a pea, without tending to group or coalesce, and terminate with slight crusting. In *pustular eczema* the infiltrated skin; small pinhead pustules in patches, the marked itching, longer course and the absence of the large isolated pustules of impetigo contagiosa would clearly differentiate it from the latter. The two diseases may coexist, but other lesions of eczema will be likely to be present also in such cases. The comparative diagnosis from *impetigo* has been given under the latter disease. *Pemphigus* very rarely occurs in childhood. Its lesions (bullæ) are the same size from the start; seemingly spring from the sound skin, and have no special predilection for the face or hands. Whereas impetigo contagiosa occurs chiefly in childhood; its lesions begin small and increase by peripheral growth and seek especially the face and hands. In cases of doubt in so-called epidemic pemphigus, a day or two's observation of the evolution of the eruption would determine its nature. It is only when the pustules of impetigo contagiosa become transformed into ecthymaform lesions that it would be mistaken for *ecthyma*, when practically the distinction is only a difference in mode of origin, and some of the primary lesions of the former can be usually found. The latter is a disease of adult life, commonly located on the legs, and the lesions are deeper seated, while impetigo contagiosa is an affection of childhood, usually located on the face and hands, and its lesions are very superficial.

Finally, it may be remembered that impetigo contagiosa quickly responds to treatment which would only modify the course of eczema, ecthyma, etc.

PROGNOSIS.—The disease may end spontaneously in about two weeks, but may be perpetuated for a longer time by auto-inoculations in neglected cases. It is quickly cured by treatment.

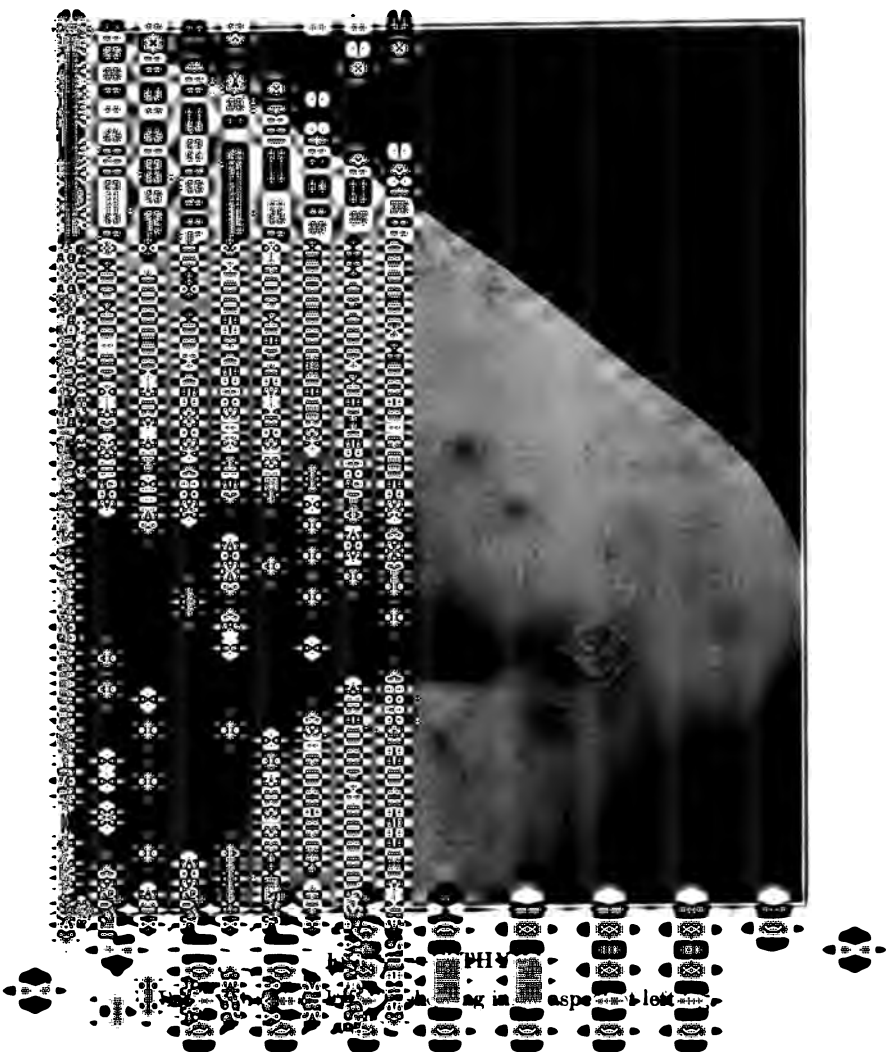
TREATMENT.—Sterilizing the affected skin with any mild and unirritating parasiticide will cure the disease in a few days. Nothing is better than a one to five per cent. ointment of *ammoniated mercury* rubbed into the parts three times a day. When the crusts become loosened they can be washed off with soap and water. Almost equally effective and sometimes preferable, if the surface involved is considerable, are ointments containing *naphthol*, ten to fifteen grains; *resorcin*, ten to twenty grains, or *boric acid*, thirty grains to an ounce. If the mucous surfaces are affected, a saturated aqueous solution of boric acid (filtered) may be used as a wash, twice daily or oftener. Internal remedies may be given as indicated, but the very contagious nature of the disease forbids reliance on them alone. See *Ant. crud.*, *Ant. tart.*, *Cal. sulph.*, *Cicuta*, *Kali bichrom.*, *Lyc.*, *Nat. sulph.*, *Pic. acid*, *Sil.*, *Thuja*, *Viola*.

ECTHYMA

DEFINITION.—An inflammation of the skin characterized by the development of one or many large, discrete, flat pustules, situated on an indurated base surrounded by an intensely hyperæmic areola, and drying into dark, bulky, firmly attached crusts, underneath which may be found a smaller spot of erosion or ulceration.

Ecthyma, while no longer standing for a distinct disease, represents a clinical type of cutaneous inflammation which, like impetigo contagiosa, may follow pus inoculation under favoring conditions of the skin, or characterize some lesions of a definite affection, such, for instance, as the ecthymaform pustules of syphilis and variola.

SYMPTOMS.—The eruption begins as reddish or yellowish pea-sized or slightly smaller pustules, which enlarge and may reach the size of a dime to a quarter of a dollar. They arise from a distinctly circumscribed inflammatory base, bordered by a varying area of congestion, the color from which gradually fades into the surrounding skin. The intensity of the process directly under the centre of the pustule may result in superficial destruction of tissue and the formation of a small, shallow, circular, pit-like ulcer, and on removal of the crust is found bathed with a purulent, often sanious product. If this secretion is carefully wiped away the floor of the ulcer will be found to consist of reddish or grayish granulations. In proportion to the product of this pustular process will be the size of the resulting crusts, which are usually bulky, rough, firm, brownish or blackish colored from admixture of blood with sometimes lighter or yellowish edges. Individual lesions usually pursue an acute course covering ten or twenty days, and only a few lesions may appear; in other cases, new



pustules continue to arise every few days and the disease may be prolonged for months. Pigmentation may show the site of former pustules and rarely may be permanent. In colored people the opposite condition of partial or complete absence of normal pigmentation has been observed to follow the disease. The eruption is commonly located on the lower extremities in adults of either sex, but it may occur upon any portion of the body and at any age. Occasionally an outbreak is preceded by slight fever, and during the formative stage of the lesions, moderate local soreness, heat and burning pain may be felt, while itching is very slight or only noticed during the healing process.

ETIOLOGY AND PATHOLOGY.—Ecthyma occurs exclusively in the debilitated, cachectic, improperly fed, poorly nourished, or among those dwelling amid unsanitary surroundings. Under the influence of such predisposing factors slight traumatism, bites of insects, scratch marks made in effort to relieve itching from whatever source, easily become infected with pyogenic cocci, while filth and neglect contribute to aggravate the grade of pustulation and render its product more inoculable and auto-inoculable. So far as known, the essential cause is usually the streptococcus acting on tissues probably deprived for the time being of their normal resisting power. *Pathologically* the pustule of ecthyma does not differ from the similar lesion of impetigo or eczema, except in its deeper seat and lower grade of inflammation. It usually involves the entire thickness of the epidermis and the papillary layer of the corium, leaving at its termination only temporary or scarcely noticeable scarring. Occasionally the deeper parts of the corium are involved in the destruction process and the resulting cicatrices are permanent.

DIAGNOSIS.—Ecthyma is to be distinguished from ecthymaform lesions of other distinct forms of cutaneous disease. This can usually be done without difficulty by noting the presence of diagnostic signs of the several affections. Thus *smallpox* may produce ecthymaform pustules, but the different onset, course and presence of more characteristic lesions would determine the existence of that disease. The flat *pustular syphilide* would nearly always be accompanied with a history or some other signs of syphilis. Its pustules are less inflammatory, without the extensive, hard and bright red base of ecthyma; it is sluggish and slower in course, the ulcer underneath larger, deeper, more sharply defined and its thicker secretion dries into greenish crusts, often conical or oyster-shell-like in shape. The pustules of *impetigo* and *impetigo contagiosa* may be differentiated from ecthyma by their superficial situation, absence of indurated base and ulceration, yellowish crusts, and their occurrence in childhood rather than like ecthyma in adult life. Other points of difference may be found under diagnosis of the two first named diseases, respectively.

PROGNOSIS.—Ecthyma is always curable within a short time under proper management.

TREATMENT.—This is essentially causal and hygienic. Predisposing and contributing factors should be removed so far as possible, and the patient's general health built up by suitable diet and healthful surroundings, including a daily bath with soap and water. If the crusts are not readily removed

by bathing, they may be softened previously with vaseline or any simple fat or oil, and after the bath the same application will afford protection to the parts. In the more severe cases a mild antiseptic ointment will be found of service. *Boric acid*, twenty to forty grains; *resorcin*, fifteen to thirty grains; *calomel*, five to fifteen grains; or *naphthol*, ten to twenty grains to an ounce of fresh lard, are suitable for this purpose. When the eruption is extensive *baths made alkaline* with bicarbonate of soda or ammonia or *saline* with common salt may be used. A. P. Sherwin reports that a recent epidemic of this disease occurring in an institution was successfully stopped by the local use of *collodion*. The editor has used *adrenalin* 1:1000 in his hospital practice as a local application with good results. In some cases, where the crusts are dry, adherent, and suppuration is apparently inactive underneath, no local measures other than cleanliness need be employed, the crusts falling off of their own accord as healing is completed beneath, under the influence of improved nutrition and an indicated drug. The latter should always be given, and in many cases will effect a cure in spite of unfavorable environments. See indications for *Argent.*, *Kali bichrom.*, *Merc.*, *Merc. cor.*, *Merc. biniod.*, *Mur. acid*, *Phos.*, *Psor.*, *Secale*, *Sil.*, *Thuja*.

SYCOSIS

("Non-parasitic" sycosis; *Mentagra*; *Folliculitis barbæ*; *Sycosis barbæ*, etc.)

DEFINITION.—An acute or chronic folliculitis of the hairy parts of the face, or rarely of other regions provided with large hairs, due to the microbic infection and characterized by the presence of papules, pustules and crusts perforated by hairs.

This affection was formerly termed non-parasitic in distinction to inflammation of the hair follicles due to the presence of the ringworm fungus, described in this work as *tinea barbæ* and to which the term sycosis should no longer apply. It is now held as a result of modern research that sycosis is parasitic in origin, probably from the interfollicular invasion of pus organisms, and while to a certain extent inoculable and auto-inoculable is not clinically a contagious disease.

SYMPTOMS.—The disease varies greatly in extent and degree, is commonly limited to the region of the beard of men, but may occur in the eyebrows, axillæ and pubic regions of either sex. Away from the bearded portion of the face it is usually milder in form. Beginning on one or more parts of the face, upper lip, chin or cheeks, the lesions appear usually as acneform, conical or flat papules or nodules, soon becoming pustules and situated about the hairs. They may be few or many, scattered or near together, but generally increase gradually in number. When seated on the upper lip (occasionally involving the hair follicles in the nostrils) there is often a history of a previous nasal catarrh; then it often begins acutely with eczematous inflammation attended with heat, burning and itching sensations. As the catarrhal inflammation of the sur-



—SYCOSIS

FRONT VIEW



—SYCOSIS

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face subsides, pustules remain whose seat at the pilary follicle is proved by the penetration of each by a hair filament. Whatever the mode of onset new follicles are apt to be successively involved, and the skin may exhibit at times a mingling of pin-head to pea-sized or larger papules, pustules or tubercles and crusts in various stages of evolution and involution, or the eruption may appear in crops, and as involution of some lesions go on, a new crop arises. The discrete, closely aggregated lesions of a visible patch of sycosis may present a resemblance to a fig, from whence the disease derives its name.

The hair which at first is firmly seated in the follicle and cannot be extracted without pain, as suppuration in and about the follicle becomes active, can be easily and almost painlessly plucked; the hair is reproduced unless the follicle is destroyed by the suppurative process when the hair falls spontaneously, followed by cicatrization and permanent loss of hair. In long-standing cases the hair is apt to be thin and lacking in vigor. In moderate cases, the pustular secretion dries into small separate crusts marked by the centrally situated hair; in severe cases the close aggregation of lesions produces an almost continuous infiltration covered more or less with purulent crusts, which on removal may reveal a weeping surface and the hairs left implanted, as it were, in shallow pits resulting from the loss of their root sheaths. After months or years of the disease the hair is thinned, but distinct alopecia is rare and, if present, is accompanied with equally rare and resulting scars. Unarrested by the treatment, a sycosis becomes chronic in course, gradually invading new follicles until the whole region of the beard may be more or less involved, but the disease never extends on to the non-hairy parts of the face. In these chronic cases, which have been known to last for twenty to thirty years, symmetry of involvement becomes a feature of the disease and one side of the face may be a close counterpart of the other. Atypical lesions may appear from time to time and change the clinical picture. Furuncles; soft, fluctuating, finger-nail-sized swellings, which discharge pus through openings left by extraction of hairs on their surface; vegetations, and eczema of adjacent parts, or near by, are some of the additional lesions occasionally observed as aggravations of the morbid process. In other advanced cases the inflammation subsides to a considerable degree, leaving a persistent redness, somewhat covered by whitish scales and broken by the appearance of an occasional papule or pustule; or, again, a condition resembling eczema may develop in the affected skin, the papules and pustules arising in infiltrated tissue without being elevated or very easily distinguished, form scales and crusts. Some degree of eczema is nearly always present in long-standing cases. Exceptionally a sycosis may preserve its typical features throughout a long course of aggravations and ameliorations. One case under the writer's observation, in which the inflammation was confined to the chin, remained follicular in form during a course of six years; at short periods apparently disappearing to break forth again on slight neglect of shaving or other means of prevention. At the acme of intensity a marked resemblance, over a small area, to carbuncle was once or twice observed.

Lupoid sycosis is a term used to designate a rare condition beginning in the skin of the beard, and which is destructive and scar-producing to a much greater degree than ordinary sycosis, and resembles somewhat in its resulting effects lupus erythematosus or superficial lupus vulgaris. This form was briefly mentioned by Milton over thirty years ago, who gave to it the name lupoid sycosis, and Robinson described its anatomy from a case under his observation nearly twenty years ago. In more recent years Brocq has described it under *sycosis lupoides*, and Unna as *ulerythema sycosiforme*. The latter classes it among "regressive disturbances of nutrition," and particularly, as the name signifies, a scar-producing erythema. The process consists of a primary erythema, an intermediate stage of infiltration, and a third stage of complete atrophic destruction of the skin including the sebaceous glands and hair follicles of the affected parts, leaving a smooth, white, slightly depressed cicatricial surface. According to Unna, it begins in the beard or temple as a well-defined erythematous spot on which vesicles, scales and crusts form. It spreads serpigginously in the line of the beard, slowly and persistently, and is little influenced by treatment. The appearance of pustules may make it look like a coccogenic sycosis, but the atrophic scarring is never the result of suppuration. Robinson says the perifollicular lesions may be papular, vesicular or pustular, and as long as the disease is progressing pustular lesions are found at the periphery. In the only case of my own, which began in the beard near the central part of the cheek, and in the five years of its duration had progressively extended downward to the side of the chin, minute papules, vesicles and scales were discernible in the narrow elevated erythematous margin, but at no time was I able to discover the presence of pustules. The disease may attack the scalp, eyelashes and eyebrows. This affection is evidently not related to ordinary sycosis, and probably is entitled to the distinctive name given to it by Unna.

Sycosis of the scalp and other parts of the body provided with large hairs is less common than on the face, and is nearly always associated with eczematous inflammation of the skin of those regions. Uncomplicated sycosis very rarely causes swelling of the lymphatic glands, and deep-seated nodules, common to ringworm of the beard, are never seen.

ETIOLOGY AND PATHOLOGY.—Sycosis occurs chiefly in males after puberty, though analogous pustular folliculitis of other parts may occur in adults of both sexes. It appears to be dependent on no special condition of the skin, health or mode of life. The same influences which render the skin vulnerable to pustular eczema and other suppurative processes may be also the predisposing causes of sycosis. These may be external, such as mechanical, chemical or thermal factors which derange the local nutrition; or internal, from retention of waste and other products in the tissues due to the defective elimination or over-production, etc. Under these favoring conditions of the surface tissues an invasion of the pilo-sebaceous crypts by pus cocci excites inflammation in and about the follicle. To susceptible skins, sycosis may be contagious and communicated in various ways, such as by shaving, the common use of combs, towels, sofa pillows, reclining chairs, etc., in hotels and public places.

According to Robinson, who has examined the diseased skin from a living subject, the *pathological* changes met with are the same as in ordinary vascular connective tissue inflammation due to pus cocci. The perifolliculitis and folliculitis produce a transudation of serum which penetrates the hair follicle, pus forms, and with the increase of this sero-purulent exudation, softening and rupture of the hair sheaths occur, with infiltration of the root and separation of the latter from its broken sheaths, thus loosening the hair, which may then act as a mechanical irritant. Before the hair falls out pus may reach the surface between the shaft and follicle sheath, or more often by a break in the epidermis near the hair. Though the follicle sheaths and perifollicular tissues are more or less destroyed, the papillæ escape, as a rule, and loss of hair is therefore temporary in most cases.

DIAGNOSIS.—Other pustular inflammations of the skin may show an occasional pustule pierced by a hair, but a preponderance of the lesions, limited to the hairy surfaces, especially the beard, always favors the existence of sycosis. Eczema, *tinea barbæ*, the pustular syphilide, and acne vulgaris are the only diseases likely to be confounded with sycosis.

Eczema differs from sycosis in being seldom confined to the hairy region, in originating in all parts of the skin, at first more superficially seated than the latter and usually less intense; it may be attended with a continuous exudation, forming more extensive crusts which are not limited to the pilary follicles. Moreover, eczema is accompanied with marked itching. The two diseases may coexist, either being primary in order of occurrence; or an eczema may clear up after a time between the follicles, leaving the latter inflamed, practically terminating in a sycosis. *Tinea barbæ* may develop pustular lesions penetrated by hairs, but unlike sycosis it often begins in scaly circinate, well-defined lesions or patches, and when the hair and follicles are invaded, the broken-off, stubby and early loosened hairs, the characteristic lumpy, nodular, non-suppurative swellings, multiple foci and more acute course are distinctive of ringworm, and should lead, in case of doubt, to a microscopic examination for the fungus of the latter. A *pustular syphilide* will always show evidences of ulceration on removal of the crusts, is usually attended with other concomitant symptoms of syphilis, and is rarely confined to the follicles or to the beard or surfaces supplied with large hairs. Sycosis lacks these peculiarities. *Acne vulgaris* lesions usually begin before adult life, are not confined to the hairy parts, but occur on the nose, forehead, cheeks, etc. They are often marked with comedones rather than pierced through the centre by a hair.

The rare affection known as *lupoid sycosis* may be recognized by its limitation to the hairy parts, its well-defined, slow, progressive extension, superficial but destructive character and resistance to treatment.

PROGNOSIS.—Sycosis is never dangerous to life, but is frequently obstinate to treatment and apt to recur. Still it is probably always curable under judicious management. The larger the lesions the greater the liability to scarring and consequent thinning of the beard.

TREATMENT.—While sycosis is undoubtedly a local infectious, suppurative

process, it is not to be forgotten that predisposing influences first prepared a suitable soil for its development. These factors, therefore, demand first consideration in treatment. Disturbed functions, especially of the assimilative and eliminative organs, should be corrected by dietetic and other methods of hygiene which will suggest themselves as appropriate and possible of application in individual cases. With the improved tone of the tissues from physiological means and drug remedies to be mentioned later, local treatment will be most effective.

Radiotherapy is the best single local treatment for all cases of this disease. The technique is the same as described under acne, with the possible exception that a harder tube is more desirable. Eight exposures usually suffice; the aim being to produce a slight erythema and falling of the hair. Usually this reaction disappears in a few weeks. The editor has followed this procedure in six cases, including one of lupoid sycosis, with uniform good results. In very mild forms the unipolar X-ray tube has been efficacious.

Further local treatment may be aimed to remove the crusts, and the loosened and irritating hairs, to maintain as absolute cleanliness as is possible without irritating the parts, and to give protection to the affected surface. Crusts may be softened with applications of simple oil or fat, and then removed by washing with soap and hot water, or still better hot *borax* water. *Shaving* is the best method of treating the hairs, and is only painful the first few times; but patients object to it both on account of the pain and the more apparent exposure of the surface after shaving. If refused the beard must be cut short and the loosened hairs plucked out with epilation forceps over a small area every day or two. Nearly absolute cleanliness may be kept up by washing as suggested above, or with a hot saturated solution of *boric acid*, dilute *peroxide of hydrogen* solution, *corrosive sublimate* or *creolin* soap, followed in mild cases during the day by dusting over the affected surface with impalpable boric acid powder, and at night by an application of a ten per cent. ointment of the same, or *salicylic acid* fifteen grains to an ounce of oxide of zinc ointment. In more severe cases ointments may be used containing any of the following: *Naphthol*, fifteen to twenty-five grains; *resorcin*, twenty to thirty grains; *ammoniated mercury*, ten to twenty grains; *calomel*, thirty grains; *corrosive sublimate*, one grain; *europhen*, fifteen to twenty grains, or *sulphur*, sixty grains to an ounce of fresh lard or vaseline. In suitable strength these applications are antiseptic and protective in effect, without producing irritation, but the strength must vary somewhat with the extent of the affected skin and the degree of sensitiveness, the rule being never to excite further inflammation. As in other surface diseases of the face applications conspicuous in color or odor are to be avoided if possible, and therefore are not mentioned here, though some such as *ichthyol* and *iodoform* are sometimes of special value. Occasionally acute cases are seen in which water containing *bicarbonate* or *biborate of soda* continuously applied is serviceable in reducing the more acute inflammation, after which the local methods adapted for mild or severe cases may be employed as needed. In long-standing, obstinate cases with much infiltration

a local pathogenetic effect may be obtained by painting a small area at a time with *liquor potassæ*, as suggested by Crocker. This is washed off in half a minute, and zinc or other mild protective ointment applied. Jackson speaks of the following combination as effective in some cases after other applications have failed:

R.	Hydrarg. sulph. rubri.....	gr. 7.
	Sulph. sublimat.....	3 3.
	Adipis.....	3 1½.
	Ol. bergamot.....	q. s.
M.	Sig.—To be kept on constantly.	

In all cases of sycosis the ultimate cure depends on a continuous perseverance with treatment even beyond the period of apparent cure, else a relapse is very liable to occur. This applies also to internal remedies, which are all-important and to be selected on careful individualization. See indications for *Arsen. iod.*, *Graph.*, *Hepar*, *Kali brom.*, *K. mur.*, *Merc.*, *M. biniod.*, *Nat. sulph.*, *Viola*.

FURUNCULUS

(*Furuncle; Boils.*)

DEFINITION.—An acute, circumscribed inflammation of one or more hair follicles, sebaceous or sweat glands and adjacent tissue, characterized by the formation of a cutaneous or subcutaneous nodular infiltration, followed by suppuration, necrosis, discharge, and a resulting scar.

SYMPTOMS.—The familiar affection known as “boils” may occur in a single lesion or in crops of two or more without any tendency to group, and when crop after crop succeed each other, lasting for weeks and months, “furunculosis” is said to exist. A furuncle lesion shows first on the skin as a small reddish point or papule, generally pierced by a rudimentary hair and accompanied with slight burning or itching sensations. Soon induration can be felt, which in one or two days increases to a variably sized nodule, elevating the skin, and in the centre marked by a small vesicle or pustule, often surrounded by a red areola. Rarely, at this stage, the process is arrested, constituting the “blind boil,” the pustule dries up and resolution takes place in the nodular mass. Commonly the inflammation increases in intensity and extent until the tuberosity reaches the size of a hazel-nut to a small walnut, well imbedded in or under the skin, or projected more or less above the surface; the area of redness meanwhile enlarges, and assumes a darker or purplish color owing to venous obstruction; the parts and adjacent skin become exquisitely sensitive to pressure, while sensations of heat, throbbing and tension are frequently felt to a painful degree. If the central pustule is accidentally or purposely opened on the third to fifth day a few drops of blood and pus escape, giving slight relief; left to itself, by the end of a week spontaneous rupture is

likely to occur, followed with a free discharge of pus, usually leaving a ragged crateriform opening in the skin, and exposing beneath the central necrotic pus-soaked mass called the "core." This is usually found to be firmly attached beneath, but after a few days it becomes loosened by further suppuration at its base, and is then expelled spontaneously or can be easily lifted out. Occasionally the necrotic core is absent and a free discharge of semi-liquid pus completes the evolution of a furuncle. Either form of evacuation gives much relief. The reparative process takes place gradually by granulation as the drainage is completed, and finally closes the skin with a purplish or violaceous maculation, which color fades away in a few weeks or months, leaving a small permanent cicatrix.

The *duration* of a single furuncle varies from one to four weeks; rarely the process may be completed in a shorter period or may require a longer time. The duration of an attack is equally elastic, depending on the rapidity of the morbid process and the number of successive crops, but is not infrequently prolonged for months.

Boils may occur on any part of the body, but are most often *located* about the neck, ears, buttocks, ano-genital region, extremities, and less frequently on the face, hands, feet and other parts. Neighboring lymphatic glands are often sympathetically swollen, and in chronic furunculosis constitutional symptoms may appear early or later, and of variable degree, such as pyrexia, anæmia, nervous depression, loss of appetite, and rarely hectic fever and marked cachexia may develop. Furuncles sometimes occur as complications or sequelæ of other affections, notably in eczema, scabies and diabetes.

ETIOLOGY AND PATHOLOGY.—No single state of the system predisposes to furuncles. Depraved nutrition from various conditions, such as the lithæmic, neuræsthenic, anæmic, diabetic, uræmic, septicæmic, may create the tendency to boils, but the affection also occurs in persons of more than average vigor. Here the departure from a normal state of the tissues may be one of excess of nutrition or lack of elimination, rendering the skin in either case vulnerable to factors which excite inflammation. The greater frequency of boils in the spring is probably due more to a lack of any change in diet with the advent of warm weather, together with the frequent alternation in the activity of the skin under the influence of the latter, than to mere external factors. Co-operating with any of these systemic perversions may be any one of all sorts of local agents which inflict injury on the skin. Among these may be named impetigo lesions (Unna), excoriations made with the finger-nails during the course of eczema, pediculosis, scabies and other pustular or pruritic affections, long-continued frictions, pressure or abrasions from collar buttons, hard saddles or bench, occupations which expose the skin to irritating or poisonous substances such as happen to dyers, tanners, butchers, scavengers, etc., drug eruptions, vesicant applications, poultices and simple ointments which separate or soften the epidermis and open the follicles. These or similar factors facilitate the entrance into the follicles of the *staphylococcus pyogenes aureus*, which is usually the efficient cause of furuncular inflammation, and the product

from which has been shown to be inoculable and auto-inoculable under favoring conditions of the skin.

The *pathology* of furunculus is not peculiar to this disease, except in the seat of the morbid process. Unna maintains that the common origin of a furuncle is from an impetigo lesion which meets with such resistance outwardly in the horny layer or from rapid pus formation as to force an extension downwards until it penetrates beneath the epidermis, or the pus cocci penetrate deeper into a lanugo hair follicle which runs through the pustule. Whatever the mode of entrance of the infection may be, if the soil is favorable a suppurative perifolliculitis and folliculitis is established, which, owing to its imprisonment under the epidermis, gives rise to most of the symptoms peculiar to boils. If the inflammatory exudation is intense enough, around the follicle central necrosis occurs, and the "core" thus produced remains moist, puriform and yellow because it is held in a pus-producing pocket. The process of repair is not unlike that following loss of tissue from other suppurating inflammations.

DIAGNOSIS.—As in the case of ordinary nettle-rash, so the patient often makes a correct diagnosis of boils without the aid of a physician. It is sufficient to mention that boils have been mistaken for suppurating *buboes*. Differences in mode of occurrence and evolution easily distinguish the latter. *Hydradenitis* begins by the formation of one or more painless, subcutaneous, shot-like nodules, and when they slowly reach their acme exhibit only slight inflammation, elevation and tenderness as compared with furuncles. *Carbuncle* would only be mistaken for furuncle in the very early stage. A few hours' observation would show the more extensive infiltration, and later, the appearance of multiple points or breaks in the skin which help to clearly characterize the former.

PROGNOSIS.—Simple, uncomplicated furuncle may give the patient little trouble, and run a short course under proper treatment. As a complication or sequela of other affections the probabilities would relate chiefly to the primary disease. Boils irritated by a continuance of occupation or from other sources may lead to inflammation of the lymphatic glands and possibly embolism or purulent infection of internal organs such as the lungs or brain. The danger of the latter from furuncle of the face is always to be kept in mind as a possibility.

TREATMENT.—The general or local causes of furuncle should be ascertained in each case on the lines indicated under etiology, and so far as practicable removed. Even when apparently leading a healthful mode of life, a victim of boil may be often benefited by temporary change of diet, habits, residence, occupation, etc. By physiological methods much can be done to mend systemic defects and remove contributing causes. In many cases, however, the necessary physiological means cannot or will not be carried out, and the chief reliance has to be placed on the employment of pathogenetic and local methods. Every furuncle may be considered as a possible source of further infection, as well as likely to produce a permanent defacement of the skin, and the object of local treatment is to reduce these tendencies to a minimum. Boils from start to

finish have lost their once reputed value as conservators of health, and may always be arrested early in their evolution with advantage to the patient. If a hair is found protruding from the centre of a boil it may be pulled out and the surface well painted with *iodine*, allowed to dry and *nosophen* powder well rubbed in. This will often abort the furuncular process. Still more effective in most cases is the continuous application of a two to six per cent. solution of *creolin* in glycerine, or in conspicuous locations it can be kept on at night and *nosophen* dusted over the lesion during the day; even rubbing the solution on and about a furuncle four or five times a day has served to arrest its development at an early stage. A few layers of gauze saturated with this solution are a most excellent dressing throughout the later stages where too far advanced for abortive treatment to be successful. In the author's hands this application has proved so effective that other local measures are seldom used.

Buckley speaks rightly of the abortive and other actions of the following combination applied on absorbent cotton:

R. Acidi carbolicæ.....	gr. 5-10.
Extr. ergotæ fl'd.....	3 1-2.
Pulvis amyli.....	3 2.
Zinci oxidi,	
Unquent aquæ rosæ.....	aa 3 2. M.

Poulticing should be discarded in the treatment of boils, as it promotes growth of the cocci, and incision should not be made at any stage unless for some special reason or to avert impending danger. Neither should a boil be squeezed to remove the core, as bruising the surrounding abscess wall favors a fresh extension of suppuration. In most cases the antiparasitic and protective local means before mentioned are all that is required, the indicated drug at the same time aiding greatly in effecting a removal of the systemic predisposition and consequent cure of the local manifestations. The internal remedy may be chosen on well-known indications as furnished by such drugs as *Anthraxinum*, *Apis*, *Arn.*, *Bell.*, *Cal. sulph.*, *Crotal.*, *Hepar*, *Kali brom.*, *Led.*, *Lyc.*, *Nat. mur.*, *Phos. acid*, *Phyto.*, *Pic. acid*, *Rhus*, *Secale*, *Sil.*, *Sul.*, *Vespa*, *Vipera*.

CARBUNCULUS

(*Anthrax simplex*; *Anthrax benigna*; *Carbuncle*.)

DEFINITION.—An acute, circumscribed cutaneous and subcutaneous inflammation, characterized by a broader induration than occurs in furuncle, undermining of the integument and the appearance of several pustules on the deep red or dusky surface, finally terminating in death of the deeper parts by sloughing, and often of the superficial parts by gangrene.

SYMPTOMS.—Constitutional disturbances usually precede carbuncle such as chill, fever, languor and, when situated on the head or unusually extensive,

prostration may become alarming in degree. There is commonly felt a burning, tensive pain at the site of the beginning lesion, which consists of a deep, flattish, hard swelling covered by the reddened skin, soon becoming darker tinted. From the size of a boil or larger the infiltration may spread laterally to the diameter of a half-dollar up to the palm of the hand, rarely larger. This presents at the end of a week or ten days the appearance of a flatly convex hard tumor, of a livid color, gradually merging into the surrounding skin, with its surface studded with several or numerous pustules or circular openings in the skin which mark the site of pustules of a few days before. Through these apertures a sanious pus indolently exudes, and the pus-soaked sloughs can be seen beneath, representing at this time the most pathognomonic stage of carbuncle. As the process goes slowly on the slough breaks down and is discharged through the enlarged openings in the skin, or the latter gives way with the slough, is thrown off in large parts or *en masse*, leaving a sharply cut crateriform ulcer with uneven floor and overhanging edges. The process of repair is the same as after furunculus, by new granulation tissue and closure by cicatricial tissue. The scar often remains a violet tint for some time, and then fades to a whitish indelible and sometimes puckered spot.

The *duration* of carbuncle varies from two to six weeks, according to the size and location of the lesion, and age and general condition of the patient. All these factors also largely determine the degree of attendant systemic disturbance. Under favorable conditions these may be slight, but in asthenic cases where there is considerable sloughing of tissue there are usually rigors and fever of a septic type, which in dangerous cases may become typhoidal in form; even without extensive lesion the local process may be of a low grade. Sometimes at its height the supra-imposed skin becomes bluish-black, and dries into a firm gangrenous eschar, more completely imprisoning the sloughing mass beneath until the former separates in the usual way; occasionally, on the gangrenous surface, a blood blister may form, or the skin undergo another change into a soft, gangrenous mass. Again, under some unfavorable condition, the process may continue to extend at the periphery; islands of necrotic tissue form, bridged with soft purplish skin and undermined by exhausting suppuration. The carbuncle lesion is usually single, and most often located on the back of the neck, shoulders, back, buttocks and lateral aspects of the thighs. It is especially dangerous, but fortunately rare, on the scalp, face or abdomen.

ETIOLOGY AND PATHOLOGY.—The predisposing and co-operating causes of carbuncle are practically the same as have been stated in the etiology of furuncle. *Pathologically* it is a similar but deeper and more extensive inflammation, or in nature an agglomerate furunculus, and probably due to an invasion of the same staphylococcus. Whether these organisms are purely etiological or partly accidental, in relation to a primary infiltration of the tissues originating from constitutional states or depression, is not definitely known, as early histological investigation of the morbid process has not been made. Unna holds the opinion that there must be a special organism for carbuncle, that the secondary suppuration only favors the attack of pyococci at that time. This also may

afford an explanation of the fact that inoculation of the skin of another person with the pus from a carbuncle has produced furuncle. The most plausible explanation of the pathology of this disease, based on the investigations of J. C. Warren and others is, that it begins like furuncle in the follicles or glands, but in those which are situated in thick and outwardly resisting skin, and, therefore, the process spreads in the direction of least resistance, downwards deeply into the fat of the subcutaneous tissue, there spreads and again rises along the fat columns (*columnæ adiposæ*), infiltrates the cutis and crowds the papillæ with pus, which finally oozes to the surface through the undermined epidermis. Thus is produced the peculiar clinical picture of carbuncle, as a subcutaneous and cutaneous abscess with currents of pus forced up between the fibrous bundles of the cutis into the papillæ, and riddling the epidermis before the necrotic derma, with its relatively intact fibrous framework, has sloughed. This mode of evolution of the carbuncle largely beneath the thick and unyielding fibrous tissue accounts probably for the classical symptoms of the disease rather than any peculiarity in the inflammatory process.

DIAGNOSIS.—The diagnostic symptoms of carbuncle are its single lesion, location in the thicker portions of the skin (back of the neck, shoulders, etc.), deep, flat, board-like swelling covered by the congested skin, and later the appearance centrally of isolated pustules or necrotic points, the accompanying burning sensation and systemic disturbances. These will at once or within a few days clearly distinguish it from all other affections. The larger size and multiple openings differentiate it from *furuncle*. Occurring on the face it might be mistaken for *erysipelas*, but the œdema of the latter is never of board-like hardness or followed by the development of necrotic plugs as in carbuncle.

PROGNOSIS.—A forecast of this affection must always include the influence of predisposing factors. In grave diseases like Bright's and diabetes, carbuncle is always a serious complication; and its occurrence in the aged or in persons of reduced vitality from any cause is unfavorable. Location on the scalp, face or abdomen adds to the danger. Nevertheless recovery may be looked for in the great majority of cases under appropriate treatment.

TREATMENT.—Carbuncles rarely occur in the vigorous; hence supporting measures will nearly always be in order, and may have a direct relation to some antecedent affection, as, for instance, the diet in diabetes or kidney affections. In old people especially, simple, easily digested and sustaining food should be taken in small quantity often enough to support the prospective tax and drain on the system. Rest in bed is wise in all severe cases. With physiological treatment ranks in importance the internal remedy, which must be selected on the indications and stage of the morbid process, as will be pointed out further on. Antipyretics, so-called, should not be given internally to reduce fever. The only safe way to reduce temperature is by local antisepsis, which at the same time meets the indications for other local needs in most cases. Locally, carbuncles may be treated the same as boils, with continuous but frequently

repeated applications of *creolin* three to ten per cent. in glycerine. Early treatment in this way will often abort a carbuncle or greatly modify its course, and since the employment of this preparation the author has not felt the need of using injections of a saturated solution of carbolic acid, incision or other surgical method. In every case it has aborted or greatly modified the usual course of the morbid process, even when the lesion has been broad and threatening. Rubber tissue or oiled silk can be placed over the gauze saturated with the solution when needed to protect the clothing. Buckley's formula named in the treatment of boils is also recommended for carbuncle, employed in the same manner, and repeated two or three times in the twenty-four hours. Other and older methods of local treatment possess no advantages over the antiseptic, and each has some objectionable feature. Poulticing is harmful, as it tends to favor the growth of pyogenic cocci and extend the infected area. In the latter stages of neglected cases, when there is considerable constitutional disturbance or local pain, complete evacuation of the abscess cavity (under partial anæsthesia) with the curette, followed by antiseptic and protective dressing, gives great relief and may be, therefore, occasionally demanded. The radical operation of excision of the entire carbuncle at one time, as advocated by Reidel and others, might be justified in rare cases by the location of the infiltration in dangerous proximity to some vital or important structure. It is then a strictly surgical procedure, and should be performed only under the precautions used in the removal of subcutaneous tumors.

Only those who have witnessed the effect of internal medication on the course of carbuncles can appreciate the value of indicated remedies. The author has had opportunity to observe treatment both with and without indicated drugs, and can affirm his belief in the equal if not greater importance of the latter in comparison with external methods alone. See especially indications for *Anthracinum*, *Apis*, *Arsen.*, *Bell.*, *Cal. sulph.*, *Carbo veg.*, *Crotal.*, *Hepar*, *Kali brom.*, *K. phos.*, *Lach.*, *Lyc.*, *Mur. acid*, *Nit. acid*, *Phyto.*, *Pic. acid*, *Rhus tox.*, *Secale*, *Sil.*, *Tarent.*, *Vipera*.

ANTHRAX

(*Anthrax maligna*; *Splenic fever carbuncle*; *Malignant pustule*, etc.)

DEFINITION.—A gangrenous inflammation of the skin beginning at the point of infection, followed by systemic disturbances due to inoculation of a virus containing the bacillus anthracis derived from animals suffering with splenic fever.

The poison of splenic fever may be communicated to man by the respiratory or digestive tract and prove rapidly fatal. It is only the more usual but fortunately rare infection of and through the skin which is considered here.

SYMPTOMS.—Within twenty-four hours after accidental inoculation, generally on the more exposed parts of the hands or face, a single painless macule

appears, followed soon by the development of an angry, itching papule, which in turn is rapidly transformed into a vesicle or vesico-pustule partly filled with bloody serum. The redness has meanwhile spread, surrounding the centre with a deep scarlet areola, and underneath the skin and subcutaneous tissue have become infiltrated, resistant and outwardly rather sharply defined or merging into cedema of the adjacent tissues. The region involved may vary in extent from a dime to the palm of the hand. The central lesion soon ruptures and reveals a slightly depressed, cedematous, dark and often gangrenous patch, which in the course of another day may be surrounded by a circle of newly formed vesicles. The lymphatics and glands enlarge, sometimes suppurate; the gangrenous patch may spread rapidly, general infection follow with rigors, high fever, occasionally becoming typhoidal in character. In severe cases death soon occurs from shock, blood poisoning or exhaustion. More often the local process is less rapid and the systemic disturbance less marked, amounting perhaps to only slight chills, moderate fever, which do not confine the patient within doors. In the mildest cases or when controlled early by treatment constitutional symptoms may be absent, the local process is circumscribed and the gangrenous mass sloughs off in due time. Exceptionally in place of the usual lesion the disease may take the shape of a widespread, malignant cedema, spotted with gangrenous points and bullæ filled with sanious fluid. This manner of infection is almost invariably fatal. Between the mildest form and the most malignant may be all grades in the intensity and extent of the local process, accompanied with corresponding systemic manifestations, but in all cases there exists the possibility of malignancy. The *duration* varies in fatal cases from two to eight days, in favorable cases recovery is usually protracted.

ETIOLOGY AND PATHOLOGY.—The disease is due to infection through some slight abrasion or opening in the skin with the germs of splenic fever, and occurs almost exclusively among those whose occupations bring them in contact with live or more often the flesh of dead animals, such as cattle dealers, butchers, tanners, wool sorters, etc. Occasionally it may be conveyed by flies or in the dust from the hair or hides of animals, while it is claimed that the milk or butter of diseased animals or the imperfectly cooked flesh of recently slaughtered animals have produced it. The disease is more common in Continental Europe, where splenic fever in cattle prevails, and is relatively rare in America, where that affection in animals is infrequent.

The *bacillus anthracis*, the largest of the pathogenic bacteria, is a rod-shaped germ 1-25,000 to 1-12,500 of an inch in diameter. It is found in great numbers throughout the affected tissue of the anthrax lesion, including the fluid of the pustule, and after a few days may be found in the excretions—urine, sweat and fæces. In fatal cases the bacilli may be found post mortem in the capillaries, especially of the liver, kidneys and spleen. The presence and proliferation of this specific bacillus and generation of its toxine in the skin excites very acute and intense sero-fibrinous inflammation, with consequent thrombosis of the arteries and rapid tissue necrosis.

DIAGNOSIS.—Malignant pustule is characterized by very rapid development

of papule, vesicle, pustule and gangrene situated on a deep, resistant, highly colored base surrounded by œdema, and on the second day by the pathognomonic sign, a depressed eschar encircled by vesicles. *Carbuncle, furuncle, poisoned wounds* and *chancre* can be excluded by their more indolent onset and course. The bacillus is readily found in the fluids of the anthrax lesion, and may be detected with the aid of the microscope, so that a suspected case need not long remain in doubt. This holds true of the rare form characterized by rapidly diffused œdema, which may resemble in some degree erysipelas, phlegmon and malignant œdema.

PROGNOSIS.—The chances of recovery from cutaneous anthrax depend largely on early and effective local and systemic treatment. Hitherto the mortality has been large; in the widespread œdematous variety the death-rate is still higher, and internal anthrax is nearly always fatal.

TREATMENT.—Deep and thorough saturation of the affected tissues with antiseptics, or complete excision of the lesion under strict antiseptic precautions, to prevent infection of cut surfaces, followed by frequently renewed antiseptic dressings, are the two methods of local treatment indicated for this grave disease. Good results have followed, even in severe cases, from hypodermic injections of pure tincture of iodine, one to three syringefuls being placed beneath the skin about the periphery and centre of the patch and the tincture freely applied to the surface. One of my own cases made a good recovery under treatment with *iodine*, locally and internally; another milder case responded to a one per cent. solution of *permanganate of potash* locally and *crotalus* internally. *Carbolic acid* injections in five per cent. solution or stronger have also been employed with success. The needle of the syringe may be inserted at the periphery of the patch with the point inclined to the centre, pushed in deeply and the injection made as the needle is withdrawn. Iodine or carbolic injections can be repeated at a half dozen or more points to reach all parts of the infiltration, and renewed every five or six hours until the spread of the disease is arrested, or indications of the toxic effects on the system of iodine or carbolic acid appear and force their suspension. Excision is generally advised, and a choice of the two methods must depend in a measure on the location of the lesion and the facilities for observing the effects of treatment in each case.

European observers have recently reported good results from the use of the *serum* prepared by Professor Sclavo of Siena, Italy; and when it is possible to procure this ingredient it should be tried, for apparently hopeless cases treated with the intravenous injection of this fluid have recovered. Usually it is introduced subcutaneously and is well borne in large doses, with slight destruction of tissue and rapid convalescence.

A nutritious diet or forced feeding, if necessary, is important, in view of the undermining and exhausting effects of the disease on the general system, and when the latter is involved alcohol in some form may be used freely both for its stimulant effect and its antidotal action on animal poisons. The indicated drug should be chosen on general as well as on local conditions prominent

in each instance. Frequently the snake poisons or other preparations of animal origin will be found to be the nearest similia. See *Anthracinum*, *Crotal.*, *Kali phos.*, *Secale*, *Tarent.*, *Vipera*.

DISSECTION WOUNDS

Accidental inoculation of an abrasion, cut or open follicle of the skin with virus from a dead body may give rise to the rapid production at the site of poisoning of vesico-papule, papulo-pustule, furuncle, tubercle, wart or hemorrhagic bleb; or there may be little or no local disturbance, with a rapid development of septicæmia or glandular enlargement. The nature of the disease which caused death and the length of time which has elapsed since that event, as well as the health of the person infected, will influence the effect produced. Aside from the particular infecting element of certain affections, such as anthrax, glanders, tuberculosis, which are described elsewhere, little is known regarding the nature of post-mortem poisons. When derived from disease they are most virulent in recently dead bodies, but it is quite probable that the decomposition of proteid substances known as ptomaines may be the source of cadaveric infection through the skin as well as other avenues of entrance to the human body. Generally when the effect of these poisons is entirely or chiefly limited to the skin the result is local and not serious, but when the cellular tissues or lymphatics are involved the condition is grave and may end fatally. The latter conditions fall within the province of the general surgeon or physician rather than the dermatologist. There remains one characteristic lesion which calls for brief mention.

Post-mortem pustule.—This may be recognized as a result of inoculation of some slight abrasion, scratch or puncture of the skin, which is manifested soon by redness, heat and itching. During the second day a small pustule is formed attended with pain and tenderness, which is quite relieved when the pustule is opened, but these sometimes return again as the pustule refills. If allowed to go on, this process may be repeated a number of times, with a successive increase in the size of the ulcer base. Sometimes the lymphatics and glands are sympathetically affected and slight constitutional symptoms are noticed.

The history of the case easily *distinguishes* it from the pustular or ulcerative lesions of other diseases. The **TREATMENT** is purely antiseptic. The pustule may be opened and thoroughly washed out with hot borated water, dried and packed or dusted with boric acid powder, nosophen or aristol, covered with gauze or absorbent cotton and sealed up with a sufficiently large piece of rubber adhesive plaster. The dressing may be renewed twice daily until the lesion is healed. *Apis* or *Crotalus* may be indicated.

RHINOSCLEROMA

Rhinoscleroma has been frequently observed in Austria and Russia, but is very rare in this country. The disease consists of a rounded tumor that usually appears on or about the anterior nares. It is characterized by slow growth, extreme hardness, painlessness and invariable recurrence after excision. It does not ulcerate, and except for this recurrence is perfectly benign. The skin covering the growth may be normal or hyperæmic, but the hairs and glands are not discernible. The process may extend to the pharynx, larynx, lachrymal sac, lips, gums, trachea, jaws and soft palate.

ETIOLOGY AND PATHOLOGY.—This disease has been observed in both sexes of various social conditions, and usually between the twentieth and fortieth years of life. The anatomical features are a dense infiltration of the corium, especially its papillary layer, with collections of small round cells. In 1882, A. von Frisch found in these cells a specific *bacillus* which was encapsulated in a colloid substance in series of twos and fours. Hence it is probable that the disease is a chronic inflammation due to the action of this bacillus or its products.

DIAGNOSIS.—The situation of the growth in the nose or upper lip, its slow, painless and progressive growth, ivory-like hardness without any tendency to soften or break down, may easily distinguish rhinoscleroma from *sarcoma*, *epithelioma* or *syphilitic* infiltrations. Where the skin covering the tumor is hyperæmic it may resemble *keloid*; rhinoscleroma is usually deeper situated than keloid, firmer, with a less irregular border, and is not likely to have a history of injury to the part. In a doubtful case a section of the growth can be removed and examined microscopically. The bacilli can be demonstrated best, according to Pollitzer, by twenty-four hours' staining with gentian-violet-aniline water decolorizing by Gram. These organisms are said to resemble closely Friedlander's pneumococcus.

The PROGNOSIS is unfavorable as to cure; the disease is likely to produce great discomfort from stenosis of the nose, and if located in the throat may cause death by suffocation.

TREATMENT.—No method of treatment has proved satisfactory. If removed by the knife or curette the growth returns. When obstruction of the nostrils threatens, nasal bougies or sponge tents may be used to keep them open. After stenosis has occurred the growths can be bored through to give passage to air. Operative wounds of the tumors are said to heal kindly. Any indicated drug may be given internally—see *Cal. phos.* and *Thuja*. As the growths are reported to have undergone resolution after toxæmic fevers, it is possible a curative toxine may be discovered.

ORIENTAL BOIL

(*Delhi boil; Aleppo evil; Endemic boils; Furunculus Orientalis; Biskra or Biscara button; Gafsa button; Natal sore, etc.*)

DEFINITION.—A local disease, endemic in limited districts in tropical or semi-tropical countries, characterized by the appearance successively in the course of months, usually on the face or other exposed parts, of a papule, tubercle, crust over a hidden ulcer and a final indelible scar due to the presence in the tissues involved of a micro-organism.

SYMPTOMS.—Sometimes only one lesion appears, but commonly there are several, and rarely many; they are situated most frequently on the elbow, forearm, hands, ankle, leg, face and thigh, never on the scalp and rarely on the trunk. The lesion begins as a small red papule, slowly enlarges to the size of a pea or larger, covered by the smooth, shining red, slightly elevated and unbroken skin. In this condition it may remain for weeks or months before the surface becomes studded with numerous whitish points, and a central opening occurs in the tubercle, giving exit to a serous fluid which dries into an adherent crust. The crust gradually increases by segments until it covers the whole nodule, which may be surrounded by a red zone on which papules may appear. Underneath this crust disintegration of the nodule goes on for weeks, gradually forming a round, superficial or deep ulcer, which if uncovered shows an irregular, sharply defined border, uneven floor, perhaps ulcerating at some points and covered with fungating granulations at others. Sometimes these ulcers reach the size of a silver dollar, or two or more may coalesce into irregular patches and continue to secrete an offensive sero-purulent fluid which forms bulky adherent crusts. Finally, reparative granulations spring up on the floor of the ulcer, gradually heal at the periphery, and the resulting scar may radiate in ridges from the centre.

The whole *duration* of the lesion varies from six to twelve months, rarely longer. Generally there is an absence of painful sensations, except in cool weather, when there may be nocturnal neuralgia and pruritus sufficient to disturb sleep.

ETIOLOGY AND PATHOLOGY.—In regions of certain countries where the disease is endemic neither sex, age, race nor nationality gives immunity from it, and, though it rarely occurs in young infants, few native children reach maturity without having an attack. Climate and season appear to be limiting factors; its geographical boundaries being pretty sharply defined within tropical climates, and within these, its foci of endemic prevalence may be isolated by zones of complete immunity. The influence of season is shown by the predominance of new cases from the beginning of September to the first of January, an absence of new cases after the month of April, and, through recoveries taking place in the meantime, the least prevalence of the disease is observed in the early autumn. Most authorities agree that infection takes place from without

into the skin through some slight or considerable break in its surface from irritants, blisters, vaccination, the eruption of other cutaneous affections, slight traumatism and the bites of insects, and the weight of evidence tends to show that the development of the local distinctive inflammatory process peculiar to this disease is due to the invasion of a micrococcus, which Wright named *heleosoma tropicum*.

DIAGNOSIS.—The endemic nature, location on exposed parts, slow evolution and absence of marked local or general disturbances will, with a little time for observation, easily differentiate Oriental boil in its early stages from ordinary *furuncle* and *carbuncle*, or from ecthymatous, rupial or ulcerative lesions of *sypphilis*, *lupus*, *yaws* or other affections.

PROGNOSIS.—Recovery is said to nearly always follow uncomplicated attacks, but there is liability to the formation of disfiguring scars when the disease is neglected, especially if it is located on the face. One attack affords no absolute protection against another.

TREATMENT.—Probably the same methods of treatment as detailed for furuncles or carbuncles would abort or greatly modify the duration of Oriental boil. Altounyou has reported good results from painting with tincture of iodine. Injections of iodine or ten per cent. solution of carbolic acid, as suggested by Crocker, into and around the affected area before it has broken down, might prove beneficial. Preventive measures consist in cleanliness, attention to sanitary and hygienic principles of living and avoidance of all sources of infection.

PHAGEDÆNA TROPICA

(*Tropical phagedenic ulcer; Aden ulcer; Malabar ulcer, etc.*)

DEFINITION.—An ulcer of tropical climates beginning at any point of injury to the skin and rapidly extending, with more or less gangrenous destruction of the parts.

SYMPTOMS.—This disease occurs in tropical regions the world over and in a few temperate climates, such as that of Egypt and Algiers, but is especially frequent and severe in the islands and main shores about the Red Sea and Cochin China.

The disease is chiefly seen in persons suffering from some loss of vigor from fatigue, anæmia, malaria, and nearly always occurs on the feet or ankles, occasionally on the hands and forearms and rarely on other portions of the body. Commonly at the site of some lesion of the skin from a scratch, puncture, bite of an insect or other breach of the surface, there soon appears a vesicle or bulla, rapidly changing to a pustule around which the parts become red and cedematous. The infiltration extends laterally and inwardly, followed closely in severe cases by the formation of a grayish or darker slough, under which the tissue rapidly disintegrates down to the muscular layers; these yield more slowly to the destructive process, but eventually disappear, together with the

longer resisting nerves and blood-vessels, until finally the bone may be attacked and the outer plate destroyed.

In milder cases only a superficial ulcer is formed by the separation of the slough, discharging for a variable time an abundant sanious pus, and then changing into an atonic ulcer which, under favorable conditions, after weeks or months, gradually heals by cicatrization.

ETIOLOGY AND PATHOLOGY.—The disease occurs chiefly among the native colored people who live in the hot countries where it prevails. White residents and visitors are much less subject to it and then in a less severe form. The undermining influences of privation, exposure, debility, cachexia and overwork appear to create a predisposition to the disease, especially in its more severe forms. The *pathogenetic* cause is believed by Boinet to be a microbe which lives in the water and mud of the infected regions. From cultivation of this micro-organism he has successfully inoculated animals, and has seen clinical signs that the pus is inoculable.

The **DIAGNOSIS** may be made without difficulty from the occurrence of the disease in hot or warm climates, its local origin at some point of injury to the skin and from other features of its clinical history.

TREATMENT.—Since the disease is infective all patients should be isolated. Local treatment should be antiparasitic, adapted to the intensity of the morbid process. In the severe cases application of pure *carbolic acid* was found by Parke to arrest the destruction of tissue and bring about healthy granulations after separation of the slough. Subsequent dressings with unirritating antiseptics, such as three per cent. *creolin* in glycerine, *nosophen*, *aristol*, or *iodoform*, are probably sufficient. In mild cases one of the latter dressings only may be needed. Physiological and hygienic methods of treatment should be directed to the relief of the general condition of anæmia, malaria, etc. Here also with the local indications will lie the choice of a drug remedy. Among them consult *Kali bichrom.* and *Lycopodium*.

ELEPHANTIASIS

(*Elephantiasis arabum*; *Pachydermia*; *Elephantiasis Indica*; *Bucnemia tropica*; *Morbus elphus*; *Elephant leg*; *Barbadoes leg*; *Cochin China leg*, etc.)

DEFINITION.—A chronic disease of the skin and subcutaneous tissues of certain regions of the body, arising from the local obstruction to the flow of blood or lymph, and resulting often in enormous enlargement of the affected part.

The term elephantiasis is now restricted to conditions alike in their pathological development, and not to varied forms of growth, such as the large lipomata, fibromata, enlargements in leprosy (*elephantiasis græcorum*), formerly included under this generic name.

SYMPTOMS.—The disease occurs endemically in tropical or sub-tropical climates, and is there chiefly due to blocking of the lymph vessels by the

filaria sanguinis hominis; it occurs sporadically in temperate climates from obstructions of the lymph or blood-vessels due to growths or inflammatory indurations. These two forms, differing thus in initial origin, are practically identical in their further pathology and ultimate effects on the parts involved, which vary from moderate thickening of the whole or parts of the skin and subcutaneous tissue up to gigantic enlargements of the same, with, of course, corresponding variations in aspect. Elephantiasis usually attacks the leg or foot, rarely on both sides; less often the thigh or buttock, and occasionally other parts, such as the scrotum and penis in men, the labia and clitoris in women, the upper extremities, parts of the face, the ears, and, very **exceptionally**, other regions of the body. It may begin in either endemic or sporadic cases as a genuine erysipelas, with the symptoms of that affection, or it may simulate the latter in appearance and sensation from infiltration of the subcutaneous tissue, swelling, vivid redness, and tension of the skin. In places where this disease is endemic there is often antecedent febrile disturbance (elephantoid fever), sometimes intense, alternating perhaps with stages of **perspiration**, severe lumbar or joint pains, nausea, vomiting and chilliness. These symptoms may, however, appear without the fever. If the lymphatics are much involved there may be vesicles or bullæ formed, from which a colorless or milky fluid is discharged on the surface, and, when the scrotum is the part affected, acute hydrocele may develop, with intense pain in the groin, along the spermatic cords and in the testicles. After a time the acute symptoms subside, leaving the part somewhat enlarged. Subsequent attacks varying in intensity and frequency add, with each recurrence, to the bulk of the enlargement until a limb may be three or four times its natural size, or the ~~scrotum~~ may sometimes continue to progressively enlarge, in extreme cases, until it **engulfs** the penis, weighs a hundred pounds and reaches below the knees. Like **gigantic enlargements** may occur, only less often, in the external genitals of women. Other parts of the body seldom undergo such gigantic growth as may take place in the leg or genitals. In the intervals between the exacerbations of the disease the patient may be quite free from suffering beyond the inconvenience proportionate to the abnormal bulk of the affected part. If there is much or prolonged drain of lymph from rupture of the integument considerable weakness may result.

When well-developed elephantiasis of the leg exists, it is found on inspection to be greatly swollen and cedematous, but hard and resistant to pressure, showing subcutaneous involvement as well as marked hypertrophy of the skin itself. This is often most marked along the sides of the natural lines of the skin, transforming them into deep sulci, especially exaggerated at the flexure of a joint. Prominent papillæ may also elevate the surface more or less here and there in the form of warty plaques covered with thick, hard or softened epidermis, which together with the varicosed lymphatics, or deep protrusions from them, give to the reddish-brown or deeper stained skin an uneven, irregular surface. Less often the surface may be quite or comparatively smooth unless complicated with eczema, which is not uncommon, and attended with severe

itching, adding greatly to the discomfort of the patient. Varicose ulcers may further complicate the surface conditions, neighboring glands are usually affected sympathetically, and occasionally keloidal growths appear on the surface. In the linear depressions of the skin before mentioned the imprisoned sebum and sweat decompose, and with the macerated epithelium cover the opposing surfaces with a slimy, offensive fluid. In advanced cases sometimes scattered scars may be found mingled with other lesions, marking the site of former ulcers or other losses of tissues. Rarely the bones of the limb are involved in the hypertrophic process (similar to acromegaly), and enlarged in all dimensions, contributing to the unwieldiness of the member. In the endemic form both limbs are often affected, but in most cases occurring in temperate climates one limb only is involved. *Elephantiasis telangiectodes* is a name given by Virchow to a congenital vascular naevus which, on subsequent development, gives the limb a lobulated feel and enlargement, but firm pressure on the part temporarily empties the vessels of their contents.

ETIOLOGY AND PATHOLOGY.—Climatic conditions found in warm countries in connection with bad living, malaria, especially as affecting the dark races, appear to predispose to elephantiasis, and removal from regions where it is endemic is said to arrest the disease, which, however, recurs if the patient returns to the former district. Yet it occurs sporadically nearly all over the globe except at the Poles, and Manson argues that its geographical distribution is limited to that of the mosquito. Claims have been made that some cases are congenital in origin; the affection begins, however, chiefly in adult life, and is three times more common in men than in women, probably from equal differences in exposure of the two sexes. The essential or pathological causes have been referred to incidentally in discussing the endemic and sporadic types of the disease. According to Unna, the primary pathology consists in local venous stasis and obstruction to the escape of blood, both in elephantiasis filariosa and the sporadic form, which may follow on the tissue changes left by erysipelas (fibrinous thrombi in the capillaries and veins) and other affections. He does not ascribe the local changes to the presence of filaria in sufficient number to block up the lymphatics or glands, both of which are permeable to the embryos, but to the venous stasis from their first invasion, and the fibrinous inflammation (with erysipelas-like symptoms) to the penetration of the filaria into the skin. The periodic exacerbations of the disease correspond to the recurring emigration or swarming of the organisms in the circulation, which in the case of filariosis is cyclic in nature and may be complete inside the human body or occur partially without. According to Manson, the filaria are taken into the body in drinking water, find their way into the lymphatic channels, there discharge their ova, which are swept along in the lymph current to the glands. Here they hatch out and the embryos pass on through the lymphatic vessels into the circulation, where they are especially active in the capillaries at night. Mosquitoes abstract them from the blood, retain them during further development and then transfer them to water, to reach man again when the contaminated water is drunk. Besides the causal relation

of erysipelas to the development of sporadic elephantiasis, pathological effects on the circulatory apparatus in the skin from phlebitis, phlegmasia alba dolens, obstinate or repeated attacks of eczema, psoriasis, or other inflammations may be the exciting factors; or mechanical obstructions from tumors, gummata, too closely applied bandages or appliances may induce the primary venous or lymphatic stasis. In fact, the mechanical is an element in the operation of all causes and accounts for the occurrence of the disease more often in parts where the circulation is most easily impeded, as in the lower extremities and genitals. A predominance of hypertrophy of the tissues with a minimum of lymph stasis or dilatation occurs usually in sporadic elephantiasis; while the filarial or endemic form may present a chain of symptoms scarcely distinguishable from the former, the lymphorrhœic type may predominate, as in the *lymph scrotum*, often to the extent of an exhausting lymphorrhagia.

DIAGNOSIS.—This is easy from the objective features of elephantiasis (usually limited to one limb) of pronounced enlargement, firm œdema, hardness of the surface, with perhaps papillary elevations, varicose lymphatics, together with a history of occurrence from repeated attacks of erysipelas, persistent or recurrent inflammations of the skin of the affected region, mechanical obstructions to the circulation acting from without or from within, and in tropical countries from the history of attacks of "elephantoid fever." In syphilitic cases some evidences of the previous local lesions can usually be found in the shape of thin, ovoid, circular or figurate scars unattached to the part beneath. Deep brown or blackish stains may be left from varicose vessels, varicose ulcers or from eczematous inflammation.

PROGNOSIS.—Life is not so much imperiled by the disease as existence is burdened by the enlargement of the extremity, genitals or other parts. Removal from an endemic district is said to quickly benefit cases of elephantiasis filariosa. In sporadic cases relief will often depend on the removal or modification of the cause in the early stages, and on the utility of surgical measures in the later stages.

TREATMENT.—This must be directed, when practicable, to the causal condition or agency which led up to the elephantiasis, and as the causes of the disease may be one or more of many different influences, it follows that the causal treatment must be adapted to each individual case. It may, therefore, look to the betterment of general and special hygiene, such as removal from an endemic district, better sanitation, diet, and other improvements in the mode of life of the individual. The local conditions of obstruction call for such mechanical methods as even support with a rubber bandage by day and a wool or cotton roller at night. Good results have been attained by long use of this method of compression in connection with internal treatment. By these means the veins and lymphatics regain tone, some absorption occurs with consequent lessening of the œdema and size. Surface affections, such as eczema, ulcers, etc., should receive attention suited to their local needs, but the routine use of inunctions or the application of so-called absorbents, except for syphilitic gumma, are not recommended. In advanced elephantiasis

enlargement, especially of the genitals, the improved methods of surgery offer the best results. The chief objection to surgical treatment is the frequent occurrence of lymphangitis. Nerve-stretching has been reported as successful in a number of cases. Galvanism and massage may be useful in some inoperable cases of the disease affecting the face or other parts of the surface. Rest and elevation when the limbs are involved are probably serviceable in all cases, and in the acute exacerbations of the disease are essential to the best success of efforts to modify the attacks by internal treatment. The latter may be adapted to the nature of the acute process, whether it be an erysipelas or other kind of inflammation. The choice of an internal remedy in the intervals between acute aggravations may rest on the indications present in a given case, but the existence of any specific or constitutional cause should not be forgotten in this connection, and preference given to drugs which act on the fibro-muscular structures of the skin. The author has seen good results follow such medication in the early stages of sporadic elephantiasis without the aid of local treatment. Among other drugs see *Cal. fluorica*, *Hydrocot.* and *Silicea*.

TUBERCULOSIS CUTIS

GENERAL CONSIDERATIONS

Among bacillo-genous diseases of the skin there are none of such interest and clinical importance as the varieties of primary and secondary tuberculosis, especially in their possible etiological relation to tuberculosis of the internal organs, the mortality from which dwarfs in extent that of any modern disease. The scientific investigations of Koch and others have demonstrated the presence of a specific organism—the *tubercle bacillus*, in the lesions of both internal and cutaneous forms of the disease, and that inoculations with cultures of these bacilli will produce the same disease in susceptible animals. The vulnerability and reaction of the tissues to this organism vary widely, and account on the one hand for individual immunity from the disease, and on the other for the varieties of its clinical manifestations in those infected. The tubercle bacillus is only feebly infectious, and the wide distribution of tuberculosis is probably due to its general and constant prevalence. Low vitality of tissues, either hereditary or acquired, particularly the scrofulous diathesis, may create a predisposition to tuberculosis, but there is every reason to believe that the actual disease is always acquired, and that no child is born tuberculous. Cutaneous forms of the disease are much more common than is generally supposed, and some chronic ulcers, warty growths as well as the forms of lupus vulgaris, are now known to be varieties of tuberculosis. They frequently originate in early life owing to the less resistance of the skin and the more indiscriminate contact of the hands with persons and things during childhood. In crowded habitations, where, from lack of means or inclination, cleanliness is unknown, accidental abrasions or the presence of simple inflammatory

affections of the skin or mucous membrane afford not infrequent avenues for infection by contact, if general or local tuberculosis is present in the circle of neighborly people. Although tuberculosis of the integument is only moderately contagious owing to the few bacilli commonly present in the lesions, secondary infection (chiefly pulmonary) has been observed by Leloir, Besnier, Haslund and others in Europe in sufficient number to show the possible danger from the cutaneous disease. Haslund of Copenhagen found in his clinic that lupus patients had pulmonary tuberculosis in the large proportion of sixty per cent. In America few instances of undoubted secondary infection have been recorded. My own observation of many cases of both cutaneous and pulmonary tuberculosis leads to the conclusion that cases of the former seen in this country seldom result in secondary infection of internal organs, while, on the other hand, certain rare cutaneous forms are frequently secondary to pulmonary phthisis. Indeed, the latter disease from its great prevalence is probably the chief source of infection directly or indirectly for all other forms of tuberculosis.

There still exists some confusion as to the relation of *scrofula* and tuberculosis. The modern conception of *scrofula* is that of a special diathesis or existing proclivity of the tissues to disease, and not a definite form of morbid change. The form is determined by the nature of the exciting cause. This delicacy of the tissues of the strumous renders them abnormally susceptible to injurious influences of many kinds, but particularly to the action of pathogenic micro-organisms, and especially to the tubercle bacillus. The term *scrofuloderma* is, therefore, still employed to designate a type of cutaneous tuberculosis supposed to be largely dominated by the strumous diathesis and affecting chiefly the glands and subcutaneous tissues. Tuberculosis of the skin may be conveniently studied in four divisions: A. Tuberculosis cutis orificialis. B. Tuberculosis verrucosa. C. Lupus vulgaris. D. Scrofuloderma. Lichen scrofulosus and erythema induratum are probably of a tubercular nature, and will be considered separately.

A. TUBERCULOSIS CUTIS ORIFICIALIS

(*Miliary tuberculosis; Tubercular ulcers; Ulcer of the phthisical, etc.*)

This division includes forms which were once supposed to be the only manifestations of integumentary tuberculosis. Primary forms are exceedingly rare, and are probably then due to direct inoculation from another person suffering with tuberculosis. Nearly always it is secondary to pulmonary or intestinal tubercle, and the lesions are almost invariably situated at the junction of the mucous membrane and the skin at the mouth, nose, anus, vagina and penis. In comparison with pulmonary tuberculosis orificial tuberculosis is exceedingly rare. Chiari, who was one of the earliest to recognize the nature of these ulcers, examined about four thousand tuberculous

bodies, and found only five with ulcers at the outlets of the body, and these all on the lower lip. In nearly a thousand cases of phthisis seen by myself only one has presented an undoubted tubercular ulcer, situated on the lower lip. One primary case has come under my observation in a young girl, who neither before nor since the ulcer healed has shown any other sign of tuberculosis. In this case the ulcer was situated at the centre of the lower lip, where a slight fissure had previously existed for a few weeks. How inoculation occurred could not be ascertained. Where tuberculous ulcers have been found at the orifice of the anus, vagina or glans penis they have been found secondary to intestinal or genito-urinary tuberculosis.

The lesion is commonly single, but may be multiple and later run together to form irregular or serpiginous ulcers. The single ulcer often presents a quite characteristic appearance. It is shallow with a gnawed-out look, due to degeneration of miliary tubercles at the edges, leaving jagged indentations, and sometimes over the floor yellowish elevations consisting of tubercle nodules. Occasionally the surface is crusted over, more often it is covered with a sero-purulent secretion. The single ulcers rarely attain a large size, but show no tendency to heal, and if neglected may by slow infection of contiguous parts finally involve quite a large area of skin. Unlike other forms of cutaneous tuberculosis they are often painful and sensitive, probably owing to the friction, tension and irritating secretions to which they are more or less exposed at the orifices of the body. Sometimes they seem to give but slight annoyance, and occurring more often in the late stage of tuberculosis are probably little heeded in the presence of the extreme symptoms of the primary disease. The mucous surfaces of the mouth, tongue and throat are frequently affected when the ulcers occur at the mouth and exhibit similar characteristic ulceration as upon the skin, while the pathognomonic miliary lesions in the vicinity of the ulcers are more commonly seen on the mucous membrane than about the like lesion on the skin. In fact this form of ulcer on the tongue was recognized long before the nature of the cutaneous lesion.

The ETIOLOGY of orificial tuberculosis is clear. Some slight abrasion or simple inflammatory lesion at or near the margin of an outlet of the body in those suffering from internal tuberculosis, and over which pass sputum or other secretions or discharges containing tubercle bacilli, afford the conditions favorable to auto-inoculation. Often in these cases tuberculous ulcers of the mucous membranes also exist. They may occur when the signs of internal tuberculosis are slight or absent, and it is quite probable, from the evidence of a few cases reported, that injuries of any part of the surface may be accidentally inoculated and develop primary or secondary tuberculosis of the skin according to the source of infection. Morris mentions such ulcers as beginning in a patch of eczema. These primary forms may resemble other varieties of cutaneous tuberculosis rather than the orificial, or they may present intermediate clinical forms. It is claimed that the habit of sucking the wound in the Jewish rite of circumcision has, when the operator was tuberculous, sometimes resulted in inoculation of the disease.



FIGURES VIEW SCOT

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FLORIS

year. No serious tubercular disease, a small abscess and the jaw well set. The external rotation, ten degrees, slight and to the right. Final myelogram five frequent curves (O, C, L, thoracic) are more or less satisfied. The thoracic

PATHOLOGICALLY, typical cases of tuberculosis cutis orificialis are identical with miliary tuberculosis of the lungs and other parts.

The **DIAGNOSIS** is readily made when undoubted pulmonary or other internal forms of the disease exist, and especially when associated with manifestations of the disease on the mucous membranes. Even without these corroborating conditions the history and objective features of the lesions above described will generally distinguish them from the ulcers of other diseases, while microscopic examinations of cultures from scrapings from the surface of an ulcer may reveal the presence of the tubercle bacilli. Failure to find the pathogenic organism, however, is not proof that a tubercular disease does not exist. The **PROGNOSIS** as regards healing of the ulcer is reasonably good. Two of the three cases of my own healed kindly under treatment and have not returned, though one has had chronic phthisis for years.

B. TUBERCULOSIS VERRUCOSA

(*Verruca necrogenica*; *Tuberculosis verrucosa cutis*; *Anatomical tubercle*;
Post-mortem warts.)

This is a rare local form of tuberculosis of the skin due to direct inoculation of some break or lesion of the surface with tubercle bacilli. It occurs chiefly on the hands or fingers of persons who are in the habit of handling dead tissue containing living bacilli, and has long been known as anatomical wart. It may develop on the hands of physicians engaged in dissections, post-mortem examinations and from examinations or operations on tuberculous subjects; and more often probably on the hands of helpers in mortuary rooms, butchers, etc., who are less careful in the protection of slight wounds of the skin. It may also result from auto-infection in the tuberculous, as in a case of my own, and it has occurred in those intimately related to and caring for the phthisical over long periods of time. Unna looks upon *lupus verrucosus*, which sometimes occurs upon the hands, as clinically identical with this type of the disease, and McCall Anderson under the same name or *scrofuloderma verrucosum* long before described a similar affection occurring on the hands, elbows and knees of children. Bowen states he has observed cases of the disease on the hands of men in charge of cattle on the transatlantic steamships.

The *lesion* of tuberculosis verrucosa develops very gradually as a rule. It usually begins as a flat papule, which after a time becomes pustular; the latter dries into a crust and is eventually shed, leaving exposed a surface made uneven by enlarged papillæ. Pustules may continue to appear at the border, while the papillæ slowly become larger in the centre, until a prominent warty growth is formed covered with crusts and corneous epithelia. When a patch is increasing in size it is often surrounded by a rather broad band of erythematous skin, and during the periods of aggravation especially, pustules may form at scattered points over the surface, or pus can be pressed from

between the papillary excrescences. There is seldom any tendency to ulceration as in orificial tuberculosis, probably due to the differences of structure of the skin in the different locations affected. Nearly all cases show a pronounced tendency to papillary overgrowth, but the size and clinical appearance of the plaques may vary widely. The lesion may remain single, small and stationary, or beginning singly it may gradually enlarge up to three or more inches in diameter; or, again, new foci may form, remain isolated or contribute in the formation of a more or less irregular patch. Rarely there may be little or no apparent papillary hypertrophy, and occasionally all signs of inflammation may be absent.

The *duration* of verrucose tuberculosis is variable. Occasionally spontaneous evolution takes place, with the resulting production of a cicatrix. This may occur more often than is supposed, because it is quite likely the nature of these warty growths is sometimes overlooked when they remain small, stationary and give little or no annoyance to the patient. On the other hand, if not interfered with, they may slowly enlarge for years. Hutchinson has mentioned a case which increased in size over a period of forty years.

The predisposing influence of certain occupations above named and direct inoculation of some wound of the surface with matter containing tubercle bacilli make up the *ETIOLOGY* of this form of direct cutaneous tuberculosis. No constitutional predisposition appears as a factor in these cases, for those attacked have been found usually in good bodily condition. The bacillus of tuberculosis has been found in the lesions more abundantly than in some other cutaneous forms of the disease, and inoculations have produced true tuberculosis in animals.

The reaction of the dermal tissues to the presence of the bacilli leading up to epithelial and papillary overgrowth is the most uniform *PATHOLOGICAL* characteristic. Rarely is the disease followed by systemic infection, though a few recorded cases of secondary involvement of the lymphatic glands and deeper vital parts indicate the possibilities in this direction.

On the whole the *PROGNOSIS* may be said to be favorable in most instances for complete recovery.

The *DIAGNOSIS* would only enter into a comparison with simple warty growths. The occupation of the subject, mode of occurrence, signs of inflammation, pustular lesions and other characteristics named will usually suffice to distinguish the anatomical wart from all others. Discovery of the tubercle bacillus by microscopic examination is pathognomonic, but failure to find the micro-organism is common and of slight negative value.

C. LUPUS VULGARIS

DEFINITION.—A tuberculosis of the true skin and mucous membranes, characterized by neoplastic formations, with the appearance on the surface of papules, nodules and patches, which may undergo various changes and finally result in destruction of the tissues involved by degeneration or atrophy, leaving scars.

This is by far the most important, if not the most common, of all forms of cutaneous tuberculosis, and for its many clinical forms a great number of different names have appeared, from time to time, before its true pathology was understood. These qualifying terms for minor variations are no longer useful, but on the other hand confusing, and, therefore, will be mentioned only parenthetically in the text as the different phases of the disease are described.

SYMPTOMS.—The most typical lesion of lupus vulgaris is a soft, jelly-like pin-head to pea-sized nodule or "lupoma" of a dull red to a violet-red color and situated in the corium. It may be scarcely perceptible to touch, without elevation above the surface, but the color does not quite disappear on pressure, *Lupus maculosus*, *Lupus planus*. Usually this is only an early stage of the disease, but it may remain the type throughout its course. More often two or more lesions sooner or later develop simultaneously, successively or without order, producing one or more variously sized elevations of the surface, *Lupus elevatus*, *L. nodosus*, *L. tuberculatus*, *tumidus*.

The lupus eruption generally pursues a very chronic course, sometimes apparently undergoing little change for ten to twenty years or even longer. It rarely ulcerates, but sooner or later an atrophic involution begins by a process of resorption and fibroid degeneration, *Lupus non-exedens*, *L. non-ulcerosus*. In these cases the lupus elevation gradually flattens and disappears, leaving the epidermic covering wrinkled and scaly, *Lupus exfoliatus*, *L. psoriasiforme*. When involution is complete a depressed cicatrix occupies the site of the former lupus lesion. Sometimes fibrosis is excessive and a sclerotic mass replaces the former lesion (*Lupus sclerosus*, *L. fibrosus*); but the keloid-like growth thus formed may still remain tuberculous.

Lupus serpiginosus is a name given to an intractable form of the disease, in which the lesions continue to appear at the periphery, as others in the centre are undergoing absorption. This variety may extend over a wide portion of the face or an extremity and produce great disfigurement.

In many cases the reaction changes in the tissues around the lupus infiltrate account largely for the clinical features of the disease. Thus there may be thickening, œdema, hypertrophy, hyperplasia, lymphangitis, which suggested to the older writers such qualifying terms as *Lupus hypertrophicus*, *L. elephantiacus*, *L. papulosus*, *L. œdematosus*, etc. With or without the presence of these inflammatory conditions of the tissues of the affected part, the lupus growth having reached the acme of evolution may undergo a fatty

or cheesy degeneration, resulting in softening, giving way of the surface and the formation of a so-called ulcer, *Lupus exulcerus*. The open sore thus formed is probably at once infected with the micro-organisms of suppuration, hence the crusts which always form while the destructive process remains superficial are composed of the dried products of degenerating tubercle and a sero-purulent secretion, *Lupus crustosus*. The objective appearance of these crusts will vary with the activity of the septic process to which they are directly due. Indeed repeated microscopic examinations of the secretion from these open lesions may fail to discover any tubercle bacilli, but will show the presence of numerous pus cocci. When a crust is removed, however, the characteristics of the *lupus sore* will be found; it is roundish in outline, with a well-defined, thin-edged, shallow and reddish margin, a grayish or dull reddish, granulating and sometimes hemorrhagic floor, and usually without pain or sensitiveness to pressure. Another and almost pathognomonic sign of the lupus ulcer (and characteristic of nearly all tuberculous tissue) is the absence of induration or hardness, which permits even a blunt pointed instrument to readily pass through its surface before cicatrization or other fibrosis has occurred. The process of involution by resorption first mentioned, fibrous metamorphosis, and the later one of destructive degeneration by softening, may go on side by side in the same subject. New lupus tubercles may also appear at some points undergoing retrograde change, more often fresh nodules appear at the periphery of a patch, sometimes separated from the margin of the ulcer by islets of sound skin. Further advances of the disease and subsequent destructive process may be superficial, *lupus superficialis*. Or it may be deep, and following the gland structures, blood-vessels and lymph channels, attack and destroy fibrous, muscular, cartilaginous and rarely bone tissues in its course. Both superficial and deep advances may go on at the same time, *lupus vorax*. The process may be not only extensive in the region affected, but may be rapid in its course, *Lupus phagedenicus*.

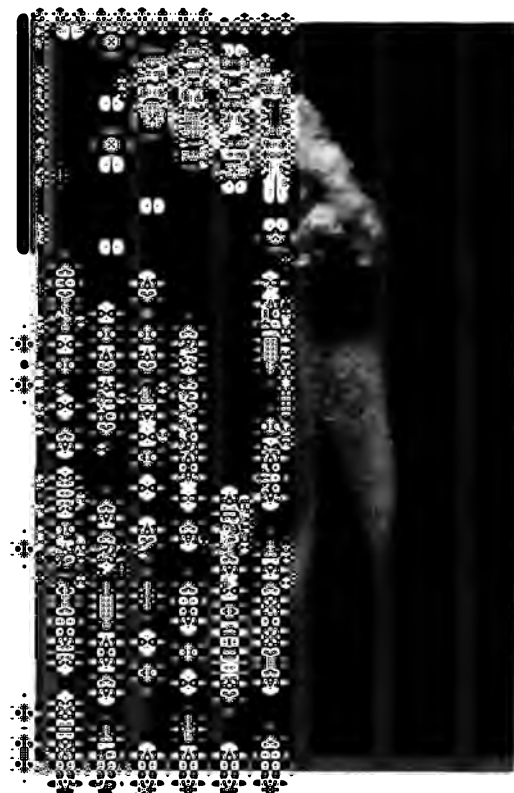
The acutely destructive forms of lupus are very rare and probably due to some secondary infection or to a peculiar idiosyncrasy of the individual to the liquefying process of the retrograde stage of the disease. But in another distinct type of lupus vulgaris, termed by Unna *lupus diffusus radians*, there is a much greater tendency to extension, probably from the early and continued involvement of the blood and lymph structures of the skin. In this not infrequent form the lupus nodule is not so apparent or its presence in the skin is masked by a persistent erythema, which if pressed away with a glass slide brings into sight a translucent spot without regular or definite margin. In rare cases the tuberculous deposit may be insignificant in comparison with the extensive, superficial erythema which persists without much tendency to exudation, *Lupus erythematoides* of Leloir. According to Unna, the more common cases of this form have two marked tendencies: 1st. To the formation of crusts (*lupus crustosus*) from sero-fibrinous inflammation, or less often hyperplastic growths, especially of the epithelium (*lupus verrucosus*), and 2d. To more rapid extension at the periphery, and largely due, in either case, to the rich blood supply always present.



UPUS VULGARIS

ATING TYPE

live. u. location disc. two
 d st. un. the le heel
 pear. nd. xfol. g. res.
 a me. ds of atme. ave. a tri
 mts. ic sp. and. both. y, w
 ovia. 40. 40. 40.



MYXOMA VULGARIS

OF THE EAR

101. This lesion, however, is not a true tumor, but a benign growth of the connective tissue of the ear.

As a rule, lupus vulgaris occurs in a single patch, but occasionally it appears in multiple patches, either at one time, or at long or short intervals, and rarely the distribution may be wide or general, *Lupus disseminatus*. In the stages of evolution the lupus nodule and erythema may be associated in varying degree, and may continue into the retrograde stage of resorption, fibroid or cheesy degeneration, while to these may be added, early or late, one or more of the products of inflammation or hypertrophic growth. The pathological and clinical features are also determined somewhat by the localization.

The *face* is the favorite seat of the disease, especially the nose and adjacent part of the cheeks. Most often it begins at the alæ of the nose and progressively destroys the skin and cartilage, giving to the nose a hacked-off appearance. In other cases it may extend all over the nose, or beginning at the root near the eye it may remain confined to that region, gradually destroying the parts down to the bone, the eyelids and even the eyeball. Occasionally the disease may begin in the mucous membrane of the nose and appear at the outer part of the nostril later, but the bones of the nose are rarely attacked as in syphilis, and the "caved-in" appearance of the bridge, due to the latter, is not seen. Sometimes in an advanced stage crusts and papillary growths may give a look of increased size to the nose, but on the removal of these, the cutaneous parts of the nose and cartilages may be found nearly or quite destroyed. Other parts of the face are frequently attacked secondarily or less often primarily.

The *extremities* are common seats for the disease, especially the spreading form, and on the lower limbs particularly is likely after a time to produce mixed tissue changes and more or less deformity. These phenomena arise, subsequent to the deposit of lupus growths, from repeated attacks of dermatitis, phlebitis, lymphangitis, etc., and occur chiefly on the arm below the elbow or more often on the leg below the knee. The lupus nodules along the lymphatics may degenerate into flabby ulcers, periostitis over the superficial joints and bones of the hands and feet may occur, with subsequent caries and necrosis of these parts. Later extensions and contractions may produce a pseudoankylosis of the joints, or disease of the periosteum and bones consequent to lupus of the outer parts may result in destruction of portions of the fingers, which, together with the retraction of other fingers or parts, produce deformities sometimes almost as terrible as the mutilation of leprosy. At the same time, as the result of inflammations and contractions in the tissues of the limb affected with lupus, there may be produced more or less persistent venous and lymphatic stasis with consequent cedema, thickening and hypertrophy amounting to a condition of elephantiasis.

On the *trunk* lupus is apt to be superficial, but more extensive than on other parts. Over the nates secondary changes into papillary and elephantastic forms are likely to follow or the ulcerating serpiginous type may alone appear.

Lupus of the *genitals* is rare in either sex, and nearly always the result of extension from adjacent regions. Kaposi has met with it situated ex-

clusively on the penis and scrotum. Some reported cases of lupus of the vulva are believed now to have been of a different nature.

Lupus may find a location on any region of the body, but as Hutchinson has noted, it is the least likely to occur in the warmer parts of the skin. In Austria where the disease is quite common extensive involvement of the integument is not rare, and even generalized lupus vulgaris has been observed. In America the disease is far less frequent, and is seldom found with isolated lesions in more than one region, and then very rarely shows any tendency to symmetry in distribution.

Lupus of the *mucous membranes* may occur independently of the cutaneous disease or may be secondary to it. Probably it is more often secondary in order of occurrence, though Neisser believes that lupus of the face, especially the nose, can be generally traced to pre-existing lupus of the neighboring mucous surfaces. Leloir's records show that associated lupus of the mucous strictures is present in over one-third of the cases of the cutaneous lupus. On the mucous surfaces the lupus growth is represented by single or multiple, well-defined, granulating patches or papillary outgrowths of a reddish, whitish or grayish color of variable size, and changing slowly (after months or years) into ulcerative or cicatricial processes. The buccopharyngeal and laryngeal membrane are affected more often than the tongue. The gums may be more or less covered with granulations, spongy and bleed easily, and the teeth loosened and fall out. Laryngeal lupus is quite rare, and when present nearly always involves the epiglottis. Hoarseness is usually an early symptom, and in exceptional cases coexisting inflammation (chondritis and perichondritis) and oedema may prove to be serious complications. These conditions, however, very rarely prove directly fatal. Enlargement of the lymphatic glands occurs oftener than in cutaneous lupus, and in either case Leloir looks upon the glandular involvement as an evidence of secondary infection which may lead to pulmonary tuberculosis.

Lupus of the skin, as a rule, begins primarily at an early age, which is given by Kaposi as from the third to the sixth year. It is likely to be more active in childhood, but may spontaneously disappear after a variable number of years, leaving behind atrophic scars. Many years later fresh lesions may develop in these cicatrices, or at new points, and thus the disease may appear to begin in middle or later life. In some cases it may persist from childhood or youth to old age, never quite disappearing; others may be characterized by exacerbations and remissions in the activity of the process.

Physiological changes in the system, acute diseases, exposure to cold, etc., may influence the course of lupus, which in any event is apt to be extremely chronic and variable, but generally tends to be less active with advancing age. It is usually unattended with painful sensations, but coexisting inflammation of the affected or surrounding tissues may give rise to heat, burning, itching and tension of moderate degree. The disease seldom appears to have any effect upon the general health, except in an indirect way and in unusual cases.

ETIOLOGY.—As auto-inoculation is the usual mode of infection in orifi-

cial tuberculosis, and direct inoculation in verrucose tuberculosis, so indirect inoculation appears to be the ordinary mode of origin of classical lupus vulgaris. Exceptionally it may be due to direct infection as the other forms may with like exception arise from indirect inoculation. The avenues of indirect infection may be scrofulous lesions of the superficial or deeper tissues (glands and bones), possibly at some distance by means of the lymphatics. In three hundred and twelve cases of lupus Leloir found forty-one had followed subcutaneous tuberculosis, thirty-two tuberculosis of the glands and twenty-nine tuberculosis of the joints and bones. Such evidence shows more than a coincident relation to the strumous diathesis. The coexistence of lupus and pulmonary tuberculosis has been abundantly proved by Haslund, Leloir, Renouard, Besnier and others, but the causal relationship, or order of occurrence, has not been established in a conclusive degree. Crocker says he has been astonished "at the large proportion of cases in which a history of phthisis in one or more members of the family is obtainable."

Children and females are much more prone to the disease than male adults. Probably because the surface tissues of women and children are more sensitive and susceptible to irritating organisms, and because they more readily communicate the disease by their more intimate contact with each other in the ordinary relations of life than is habitual with the male sex after maturity. While many hold to the belief that lupus rarely originates after puberty, remaining in some cases long inactive and unobserved, there are occasionally instances of the disease beginning so late in middle life as to make the theory of invariable early infection improbable. At the same time there is little doubt that any break in the continuity of the skin from accident or disease in early life may afford a starting point for a process which, under favoring conditions, may remain dormant for an indefinite period.

The most advanced PATHOLOGY of circumscribed lupus supports this supposition. Unna states that the same appearance may exist in the lupus nodule after many years as after a few months, and that after certain cellular transformations have occurred it may remain long unchanged if unaffected by any external irritant. "A balance is established between the action of the poison and the reaction of the skin; the tubercle bacilli have thrown up a wall around them inside of which they repose, latent but not dead." In the diffused form of lupus the cellular changes are comparatively insignificant, the hyperæmia pronounced, and extension of the process is nearly continuous and sometimes rapid. Hence the nearer a case approaches this type of the disease the less is latency a clinical feature.

Lupus invariably begins in the corium and works outwardly to the surface. To the number and activity of the bacilli and the reaction of the dermal tissues in different persons in different regions of the body, at different times, and to the secondary changes thereby induced in the different parts, with or without the aid of other infections, all the pathological features of lupus are due. These will be referred to briefly hereafter. Clinically, pure types are seldom seen throughout, but incline in varying degree to the circumscribed or diffuse form.

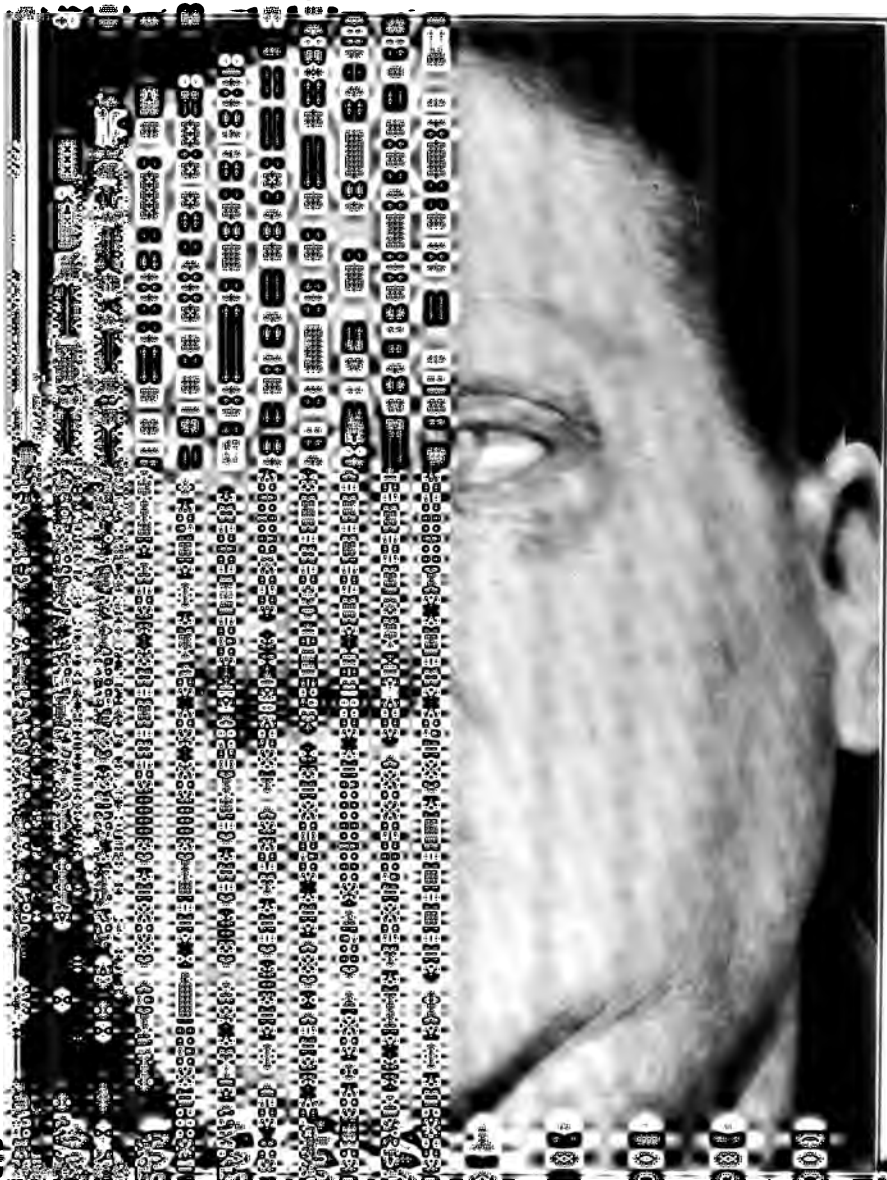
DIAGNOSIS.—The differential points relating to lupus vulgaris are—its usual beginning in childhood or youth, indolent and painless course, frequent situation on the face (especially the nose), red, yellowish-red or violet colored erythema, soft papules or jelly-like nodules and frequently presence of other signs of tuberculosis; and if an ulcer forms it is usually superficial, with soft edges and soft granulating floor, scanty and inoffensive secretion and the crusts usually thin and brownish. The soft “apple jelly” nodules imbedded in the skin or raised above it are pathognomonic, but in their absence seldom will a case be found which does not present some of the diagnostic points mentioned.

Syphilis of the skin and mucous membranes may be distinguished from lupus by its usual origin in adult life, history of primary infection and traces of other lesions, its much more rapid course, often destroying in weeks more tissue than lupus usually would in years, sometimes attacking bone early which lupus does not affect at all or only late. The syphilitic ulcer is more apt to be multiple, wider, deeper, with more sharply cut edges, offensive discharge and abundant greenish crusts. Lastly, delay in diagnosis and treatment of doubtful cases for a few weeks may show new lupus nodules developing on the one hand, or on the other antisyphilitic remedies lead to a rapid improvement of the ulceration.

Scrofuloderma, like a syphilide, will be likely to show other signs of the disease in the shape of linear scars, caseous glands, sinuses, with more ulceration and undermining of the skin than occurs in lupus, but an absence of the lupus nodule. It is to be remembered that lupus and scrofuloderma may coexist, and as they are closely related a positive diagnosis is not very important. Generally, however, they can be differentiated without delay.

Epithelioma may be confounded with lupus, but the former is usually a disease of advanced life, is painful, its ulcer is often deeper, with an uneven floor and hard, everted edges. While it is limited to a smaller area, its progress is finally more rapid and the glands are more frequently involved than in lupus. An epithelioma may originate in a chronic lupus patch and the two diseases exist together. The smooth floor and indurated border of *rodent ulcer* occurring late in life will distinguish that disease. Non-tuberculous *lupus erythematosus* may be distinguished from lupus vulgaris by its usual appearance after puberty, symmetry in distribution, superficial character without soft nodules or tendency to ulceration. Occasionally oedema may mask the lesions of tuberculous lupus and sometimes the differences between the two forms of lupus are very slight. Nearly always, if the adherent crusts of lupus erythematosus are removed, the widened opening of one or more sebaceous ducts will be revealed, corresponding to little projections on the under surface of the crust; such conditions never exist in lupus vulgaris.

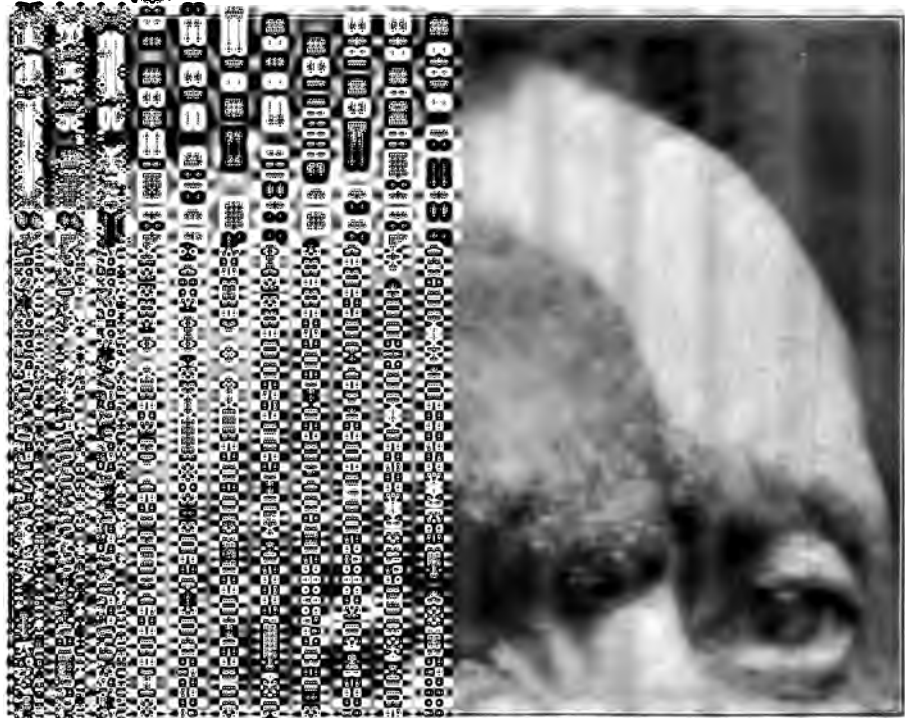
Squamous eczema and *seborrhæic dermatitis* might be confounded with lupus, but the presence of apple-jelly nodules, a sharply defined elevated border, absence of moist exudation or marked variation in intensity, slow course and tendency to scar formation will always enable one to distinguish lupus from the first named diseases.



VIAS

IN THE

be two two as a
the leave, while it remained little
outgrow appeared and progressively
hard foliage surface behind the
and beneath the use of a ulcer which
and at the inner angle of the eye the
be a solution of aggravated
follow the continuous use of



CUS VULGARIS

ODULAR VARIETY

Health good. No cancerous or tubercular family history. Tumor on the right supra-orbital region twenty years ago, now a width of three inches. Thirteen years ago in Germany the tumor turned into a carcinoma. The tumor was removed with X-ray.

In the early stage of tubercular or mixed *leprosy* some resemblance to lupus might exist. The history of residence in a leprous country and the presence of local anaesthesia would help to establish the presence of leprosy, while later developments would bring out other characteristics of that disease.

PROGNOSIS.—Lupus seldom directly destroys life, and the danger of secondary tubercular infection, though possible, is not great. The tendency of the lupus nodule to recur stands in the way of permanent recovery. This tendency can be greatly modified by indicated remedies employed in connection with germacidal or other local methods. It follows that the prospects of cure depend, in a measure, on the continuance of treatment adapted to the individual case. A scar is to be expected in all cases and should be included in the forecast.

D. SCROFULODERMA

DEFINITION.—A tuberculous affection of the skin originating chiefly in the subcutaneous tissue, lymph glands or from tuberculous bone (*osteomyelitis*), followed by infiltration and softening and resulting in the formation of ulcers.

The scrofulous type of tuberculosis is probably the most common of all forms, and has been known as scrofulous inflammation, scrofulous gumma, scrofulous abscess, scrofulous sores, etc. It produces a variety of lesions of the skin, differing according to their seat, the state and the extent of the tissues affected. They may be conveniently grouped under (1) subcutaneous, and (2) cutaneous scrofuloderma.

Subcutaneous scrofuloderma often begins in the superficial lymphatic glands, especially about the neck, under the jaw, at the side or in the clavicular region. Less commonly it starts as one or more nodular or cork-like infiltrations in the subcutaneous or perilymphatic connective tissue. The resemblance to syphilitic gummata led Besnier to call these infiltrations *scrofulous gummata*, and Unna has termed them *subcutaneous scrofulous gummata*.

The skin over these painless swellings is at first movable and normal in color, and they may undergo little apparent change for some time. Ultimately, as a rule, softening occurs, forming a cold abscess, and the skin involved by the upward growth and from pressure becomes thinned, first red and then of a bluish hue. Finally, rupture of the cutaneous covering takes place and gives exit to a watery pus mingled with caseous matter and blood. Thus a chronic scrofulous ulcer is formed varying in depth and extent with its origin and course. The degenerative process may extend downwards to the cartilage and bone, especially when the lesions are on the extremities. Sometimes they originate from an osteitis of the bones, which, according to Lyons, may be latent in some cases and their osseous origin easily overlooked. The fistulous tract from an internal focus discharges a similar fluid containing necrotic tissue, etc., as the degenerating gumma, but its appearance externally varies with the extent of the scrofulous inflammation and the dimensions of the fistula.

Often the opening is small with thin, bluish, transparent lips. Sometimes the bone of one or more fingers may be encased by the scrofulous infiltration, and caries of the bone occur, constituting a form of *strumous dactylitis*, which, in its further progress, may develop multiple fistulous openings on the surface with or without papillary and fungating growths. Bulbous extremities of the fingers and toes generally seen in children is another form of scrofulous dactylitis.

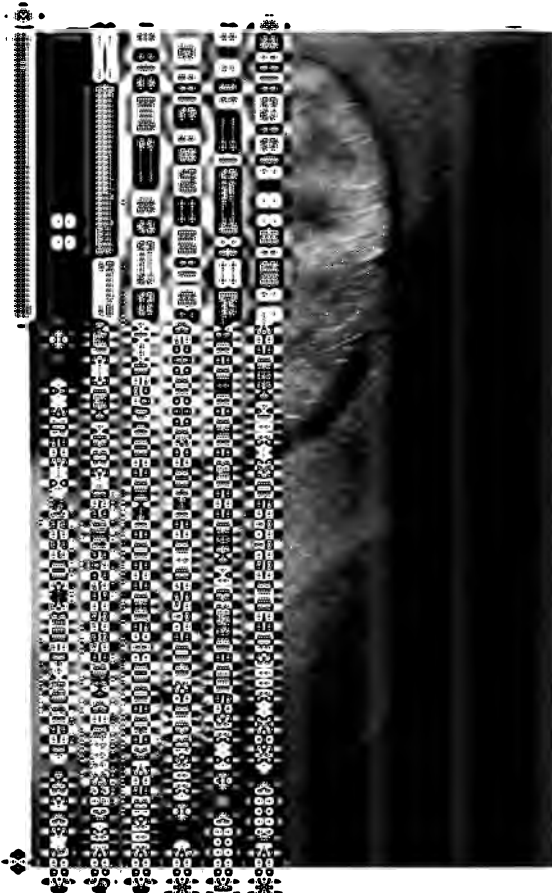
Occasionally in old people, who may show the scars of scrofuloderma of early life, strumous ulcers take on a papillary hypertrophy identical with the lupus papillomatosus of lupus verrucosus, thus illustrating the exceptional transition of a scrofuloderma into a lupus. The relationship of the two varieties of tuberculosis is further shown, in the reverse order, by the occasional development from lupus of scrofulo-gummata of the lymphatics and the consequent scrofulous ulcer.

Indeed, Unna asserts that subcutaneous forms of scrofuloderma nearly always originate from tuberculosis of the lymphatics of the subcutaneous tissue.

A form of subcutaneous infiltration described first by Bazin as *erythème indurés des scrofuleux*, and in this work called erythema induratum, is probably an unusual form of subcutaneous scrofuloderma.

The cutaneous type of scrofuloderma more often originates on the skin over caseating or softened lymphatic glands. The skin soon becomes red, doughy or flabby and undermined, sometimes riddled with openings which may extend to the gland beneath. Less frequently there is no apparent connection with the lymphatics, and flattish, ill-defined thickening of the skin occurs, of reddish-brown color, soft spongy consistence, gradually raised above the surface into a roundish or oblong, flat tumor varying in size from a pea to a walnut. It does not so readily soften as the first named and may disappear by absorption, leaving a red spot to mark its site for a long time. Both forms, constituting the *cutaneous scrofulous gummata* of Unna, usually undergo gummatous softening and spontaneously evacuate their contents, if not previously incised, and may then slowly heal or more often leave a superficial spreading ulcer showing little tendency towards repair. Untreated these ulcers may spread in one or more directions or, undermining the epidermis, small ulcers may appear with connecting sinuses extending from one to another and invading a larger extent of the surface of the affected region. Burrowing forms of scrofuloderma may open cylindrical pockets or more often sinuses of communication with either deep or superficial lesions.

Cutaneous scrofuloderma is the more common persistent and true type of the disease, but the two forms may occur in any degree of association and present a variable external appearance accordingly. The most typical scrofulous ulcer varies from the linear to oval in shape, with a grayish, uneven floor, covered with flabby granulations and secreting a watery pus. If the base is examined it may be found yielding or firm, but is never hard. The edges are generally undermined, thin, soft, pale or bluish, sharp cut or ragged and often inverted so as to nearly or quite hide the ulcer underneath. The crust



CROFT'S DISEASE

years, with a pronounced tubercular family history. The lesion on the right elbow developed in the form of a large, raised, and inflamed area. The patient was treated with a combination of local and systemic therapy, including the use of antitubercular drugs. The lesion eventually resolved, leaving a permanent scar on the elbow.



SCROFULOUS DACTYLITIS

— VARIETY

with a tubercular family history. that symptoms of scrofuloderma and that in the subsequent in- has gradually occurred; attacks of the tonsils have also been com- night, general disease and

formed by the secretions from an ulcer if of large size may be thick or rupioid in form; nearly always it keeps the shape of the ulcer covered, is thin, adherent and brownish. Clean cut, flat strumous ulcers are occasionally seen in old people; they seldom heal spontaneously and are liable to develop into rodent ulcer or other form of epithelioma. Sometimes they become papillomatous, especially when situated on the back of the hands, and are exceedingly chronic.

The *course* of scrofuloderma as a whole is always slow, and when an ulcer has formed it rarely manifests any tendency to heal; on the contrary, may progressively spread. Before ulceration occurs, the tuberculous tissue may become encapsulated and hold stationary, or, with great rarity, absorption may take place.

Where healing occurs the resulting scars are linear or irregular, often corded, sometimes net-like and isolating portions of scrofulous tissue or small areas of sound skin. These cicatrices may be of diagnostic value in later years.

The most common *location* of scrofuloderma is about the neck, as before mentioned, but it is not uncommon on the face, shoulders, hands, in the groin and may occur elsewhere. Almost always the well-known scrofulous physique, or local sign of the scrofulous taint, will be found in patients exhibiting some of the scrofulo-dermata, though the general health may appear fairly good and the cutaneous lesions give rise to little or no suffering.

Among cutaneous forms of scrofulosis should probably be placed *lichen scrofulosus*, *acne scrofulosus* (*acne cachecticorum*) and the rare *pustular scrofuloderm* of Duhring. But inasmuch as the etiology of these affections is undetermined, they may be looked upon as dermatoses of the scrofulous, the product of a mixed infection. Lichen scrofulosus will be briefly described under a separate heading. In typical form it is seldom or never seen in this country. *Acne scrofulosus* and *acne cachecticorum* are essentially the same affection and in the nature of a folliculitis occurring in the scrofulous. The eruption is said to sometimes occur in association with the lesions of lichen scrofulosus. It is less rare than the latter, and usually appears on the trunk, extremities and sometimes on the face in the form of mustard seed to pea-sized or larger, dark red, flattish and flaccid papulo-pustules. They contain a comparatively small quantity of sero pus which dries into crusts; hemorrhage may occur in some of the lesions, giving them a livid appearance or surrounding them with purplish halos. Underneath the crusts ulceration takes place and when repair occurs the resulting scars remain for a long time livid or purplish in color. While more often seen in children with other evidences of scrofula they may appear in the cachectic or scrofulous at any age, and are sometimes secondary to other cutaneous eruptions, such as seborrhoeic dermatitis and eczema in the strumous. Rarely a similar eruption is seen upon the extremities apparently unconnected with the scrofulous cachexia or any discoverable cause.

The large and small pustular scrofuloderm described by Duhring as well as the form of scrofuloderma mentioned by Von Harlingen and characterized

by the small number of lesions and extreme chronicity may be considered as rare variations from the more usual type of *acne scrofulosa*. I have observed two cases in adults in which the eruption appeared on the forearms and legs below the knees, in which not more than two or three flat, hard, split-pea sized papules (less often papulo-pustules), surrounded by a violet areola, appeared at one time. Each lesion slowly crusted over and covered a small scrofulous type of ulcer, which finally healed, leaving a pit-like cicatrix very like *acne varioliformis*. One or more new lesions formed while the old ones were involuting or healing and in each instance pursued the same indolent course. Both cases exhibited evidences of early scrofula and both had persisted for years, one for five years when first seen. Neither was attended with pain or discomfort.

The DIAGNOSIS of scrofuloderma may be made usually without difficulty. The absence of the characteristic *lupus* nodules will distinguish it from that disease. The two types of tuberculosis occasionally coexist. Then the ulcers are apt to be deeper, the crusts thicker, darker and more conspicuous.

From *syphilitic* ulcerations scrofulous ulcers may be differentiated by their usual occurrence in early life, slower course and the presence of other signs of struma. The ulcerating syphilide generally appears in adult life, is more rapidly destructive and other evidences of syphilis are often obtainable.

The PROGNOSIS as regards the local lesions is favorable. Nearly all may be made to heal under treatment. The scrofulous habit may also be greatly modified by indicated remedies and physiological methods.

SPECIAL ETIOLOGY AND PATHOLOGY OF TUBERCULOSIS OF THE SKIN.—Something has already been said regarding the mode of infection leading to orificial tuberculosis, verrucose tuberculosis and *lupus vulgaris*, designated as auto-inoculation, direct inoculation and indirect inoculation, respectively, while scrofuloderma is probably a secondary form of tuberculosis. There is little doubt to-day that in all of these types of cutaneous disease the *tubercle bacillus* is the sole *efficient* cause. It is not by any means determined how entrance to the cutaneous and subcutaneous tissues is gained in all cases, or what peculiarities of the virus itself or the tissues attacked influence the form of the subsequent process. The product of the bacilli, the nodule of granulation tissue, composed of so-called giant cells, small round cells and epithelial cells, unstable in character and ultimately undergoing central necrosis or cheesy degeneration, once thought pathognomonic of tubercle, are now known to occur in other pathological conditions without the presence of the bacilli of tuberculosis, and cannot always be differentiated histologically. The pathology of orificial tuberculosis corresponds closely to the process in pulmonary tuberculosis, *e.g.*, formation of typical miliary nodules, caseation, softening and ulceration. In such lesions the tubercle bacilli are comparatively abundant.

In *tuberculosis verrucosus* the tissue environments of the bacilli are not usually favorable for extension of the disease. This is due in part to the location in regions where the epidermis is relatively thick and the cutis rela-

tively thin and anæmic. The epidermis is stimulated to proliferate and increases in volume without suffering injury in structure by the disease being limited almost always to the papillary layer of the cutis and sometimes to the papillæ. The bacilli are said to be less abundant than in the orificial form and more numerous than in lupus, but usually more superficially situated than in either.

In *lupus* the pathological process is a much variable and complex one than in the two forms just mentioned and gives rise to a variety of clinical expressions briefly described under the symptoms of lupus. The primary seat of the morbid process is usually in the deeper part of the corium and extends its foci of disease outward towards the surface.

On a histopathological basis Unna divides *lupus vulgaris* into two main forms: (1) *Lupus circumscriptus*, nodulosis; (2) *Lupus diffusus*, radicans; and the further changes in these forms, due partly to the tubercular virus and partly to secondary processes, set up: (a) epithelial hypertrophy (synonymous with verrucose growth); (b) acute inflammation of lupus; (c) fibrillary sclerosis of lupus; (d) secondary suppuration and liquefaction of lupus and (e) absorption of lupus.

In *lupus circumscriptus* the elementary nodule is present in its most characteristic form. At the seat of these nodules in the corium, composed of closely packed cells (granulation tissue), the elastic fibres, the blood and lymph vessels are absorbed or pushed aside and the line between the normal and diseased area is sharply drawn. Within the nodule groups of cells are transformed into giant cells and every giant cell sooner or later consists of two parts, a growing and a degenerating part, and when it has reached its height of evolution degeneration predominates and regressive changes characterize the process thereafter. Giant cell transformation of the lupus nodule having taken place, it may remain unchanged for years before apparent breaking down occurs.

In *lupus diffusus* the process is not so specific of tuberculosis as in the nodular form, and there is only a scant grouping of cells, often in rows, with only slight transformation into giant cells. This is due in part to the character of the tissues involved. Beginning in the sub-papillary layer of the corium the cell growth chiefly develops from the perithelium of the blood-vessels and simple connective tissue cells, and radiates in net-like processes into the papillary body, the follicles and glands, in a minor degree about the intercellular bundles of the connective tissue and finally penetrates the fatty tissue without forming at any point distinct circumscribed areas. Consequently giant cell formation does not take place except in small number and at very limited points in the centre of the area affected. Diffuse lupus seldom exists in a pure form, but as modified by or modifying the circumscribed form in variable degrees and as influenced by inflammatory and hypertrophic processes secondarily set up by the tuberculous infection.

Aside from the pronounced *epithelial* hypertrophy already noted in tuberculosis verrucosus, more or less atypical changes occur in all cases of diffuse

lupus, not only in the main body of the prickly layer, but in the coil glands, and to a less extent in the hair follicles and sebaceous glands. These do not give rise to clinical manifestation and are of histological interest only.

The *acute inflammation* which occurs chiefly in diffuse lupus, is sero-fibrinous in nature, induced by the bacillo-genous products and the over abundant blood supply. To the latter condition of dilated capillaries, mainly at the surface of the lupus, the limitation of the exudation to the outer epithelium is due, while the deeper epithelial processes further removed from the vessels may be little affected. This acute inflammation may, in the case of encapsulated lupus nodules, lead to moderate central necrosis, but not to suppuration, and the pathological differences between the crusted lupus from sero-fibrinous inflammation and from secondary suppuration appear distinct.

In *fibrillary sclerosis of lupus* the origin of the fibrous change is in the normal connective tissue which surrounds the nodular and in a less degree the diffuse lupus growth. This change is not strictly a fibroid degeneration, but a growth of fibrous processes in a horizontal direction into the tuberculous nodule, ultimately replacing it to a large degree by inducing absorption of some and possibly restitution of other parts of the growth. If the fibromatosis is not excessive it forms the lupus cicatrix, or if the process continues to extend beyond the area of lupus deposit, firm, deep or keloid-like, reddish swellings may develop or there may ensue a transition into a more dense general tissue hypertrophy, or new growth, known as sclerotic or elephantiasic lupus.

The pathology of so-called *suppuration and liquefaction of lupus* is not well understood. Unna doubts the existence of any true suppuration, i.e., due to the action of pus cocci or the existence of a mixed infection. He inclines rather to the view that in the rare cases of lupus vorax and lupus phagedenicus there is a secondary infection of unknown nature, or of a peculiarly strong idiosyncrasy of the tissue to the action of the poison which causes a rapid liquefaction of the skin.

The *absorption of lupus* has been referred to as occurring from compression following ingrowths of fibrous processes into the lupus tissue, but there is no true resolution, fibrous tissue always forming to some extent and producing a scar. When the process permits some restoration of normal tissue into the part with only a small amount of fibrous tissue, cicatrization is the least conspicuous. In all these cases the absorption or complete disappearance of lupus tissue is uncertain, and may be followed in a longer or shorter time by a recurrence of the disease.

The pathology of *scrofuloderma* of the subcutaneous tissue resembles nodular lupus up to a certain point in development. Beyond a characteristic intercellular necrosis occurs which leaves the nuclei unaffected or only slightly changed for a long time if not altogether, unlike coagulation necrosis. The necrotic process may be changed somewhat by the presence of a moderate number of leucocytes, so that it may appear different in different parts. Scrofuloderma is roughly distinguished in its pathology from other forms of tuberculosis of the skin by its secondary origin from some internal source, and its beginning

in the subcutaneous tissues, where the bacilli find perhaps better protection and nourishment amid tissues less capable than the cutis of resisting their primary pathogenic action.

TREATMENT OF TUBERCULOSIS OF THE SKIN.—In view of the etiology of tuberculous processes affecting the tissues of the skin, the importance of preventive measures can be fully appreciated. Sufferers from any form of tuberculosis do not need to be isolated or deprived of the reasonable social pleasures of society, but they should be made to understand that so long as their disease exists and gives origin to or pollutes secretions or discharges they may be a possible source of contagion to others. This applies especially to cases of pulmonary tuberculosis so constantly prevalent nearly the world over. Sputum and all other secretions from tuberculous lesions should be sterilized and burned (not buried) when possible. Those who mingle frequently or constantly with the tuberculous as well as the tuberculous themselves should care for slight abrasions or eruptions, especially of exposed parts of the surface, by protecting them with antiseptic or occlusive dressings until healed, and accidental contact of even the sound skin with infected discharges should be followed immediately by cleansing with antiseptic solutions. Early germicidal treatment of wounds or lesions of the surface suspected of having been infected with the tuberculous virus should be thorough, sometimes to the point of saturation of affected tissues, thus aborting a possible beginning of chronic tuberculosis.

The value of internal prophylaxis for those who manifest hereditary or acquired tendencies to disease, especially the scrofulous habit, needs only mention. The utility of fresh air, sunlight, outdoor living, a suitable diet, regular exercise, cleanliness of body and mind, etc., comprehended as physiological living, in fortifying the organism against the onset of germ diseases, is well known. Add to these methods the indicated prophylactic remedy which may act more directly on the seat of all vitality, the protoplasmic cells, and it seems more than probable that a high degree of immunity can be established against many forms of disease.

The treatment of existing and active tuberculosis of the skin is best considered under (1) external treatment, and (2) internal treatment.

I. EXTERNAL TREATMENT.—Here we must remember in the first place that we have to deal with a germ disease, and that to the extent that we can destroy or limit the action of the micro-organism to that extent we remove the efficient cause and promote the cure. Furthermore, it is a destructive disease, often attended with inflammation and followed in favorable cases by the formations of fibrous or cicatricial tissue, and if it becomes necessary to artificially destroy tissue, excite inflammation or promote fibrosis, art here simply follows in the footsteps of nature. When tuberculosis of the skin is latent or inactive, as in some cases of encapsulated lupus remaining stationary for years, it is doubtful if local treatment is called for, but the moment activity begins or reigns it should be inaugurated and continued with judicious persistency.

Since the etiology and pathology of the skin have become better known, many of the more severe methods of local treatment have been largely abandoned; some have become nearly or quite obsolete and will not be mentioned here, while others little employed will be only briefly referred to. Choice will generally lie between the use of phototherapy, radiotherapy and parasiticides. Possibly all may be necessary in the treatment of any one case. **Orificial tuberculous ulcers** may be induced to heal as a rule by application of germicides in solution. I have seen rapid healing of these ulcers under the influence of cleansing with hot water (as hot as can be borne), drying the surface with antiseptic cotton and immediately thereafter painting the surface of the ulcer and slightly beyond with a solution of two to eight grains of *corrosive sublimate* in an ounce of compound tincture of benzoin. The treatment can be repeated daily or oftener and the strength increased from the weaker to the stronger solution as required. When healing has progressed to a considerable degree *dolomol-boric acid*, twenty per cent., or *aristol*, ten per cent., will serve as an antiseptic protective.

Tuberculosis verrucosa of small or moderate extent may be covered with a paste composed of *salicylic acid* and *glycerine* spread on a cloth, or with Unna's strong *salicylic acid* and *creosote* plaster, and after the thickened epidermis has been softened and destroyed it may be painted twice daily with the solution of *corrosive sublimate* above named. In the interval between the applications, the surface can be covered with thin silk isinglass plaster, which is easily removed by wetting it with warm water. As the growth diminishes in size it may be painted freely with *iodine* and then varnished over with colodion at intervals of a few days. Boring into the growth with a pointed stick of *nitrate of silver*, after the epidermis has been removed with the salicylic acid, has been advised. I have never found it needed in verrucosa necrogenica or other warty tuberculous growths; neither have I employed *curetting* in similar cases, though either may be of service in making a more rapid cure, with the after use of antiparasitics. Isolated warty growths on the unexposed portions of the skin may be removed by *excision* carried well beyond the affected area. The larger scar resulting from this surgical method makes it more objectionable for lesions situated on the uncovered parts of the surface.

Lupus vulgaris may be treated by *phototherapy*, and it is the best single method for most cases. Finsen of Copenhagen and his followers have demonstrated scientifically the worth of this form of light treatment. The records of the first 800 cases of lupus vulgaris treated in Finsen's Lysinstitute in Copenhagen, show that eighty-two per cent. were entirely cured or showed very slight traces of the disease. The apparatus and general technique will be found under the heading of phototherapy in Part I. Since deep penetration of the light is necessary, the exposures may need to exceed an hour. An inflammation develops which reaches its climax in one to two days. The eruption is mainly of a vesiculo-bullous type. When this reaction subsides, which may be in seven to fourteen days' time, another treatment is given. This routine is continued until all the lupus nodules disappear, but the patient should be

carefully watched for some months afterwards. Usually from one to six treatments will suffice for an individual patch, but generalized or extensive lupus may necessitate daily exposures, because so many different areas must be treated. All obstacles to the penetration of the light such as crusts should be removed, even if it is necessary to employ ointments for that purpose. In a fair percentage of cases which present extensive pigmentation, thick scars, or deep infiltration, or are so situated that pressure and direct radiation is impossible, *radiotherapy* is better adapted. Also many cases are unable because of their means or residence to receive the Finsen light treatment, while the Röntgen rays may be found everywhere. The X-rays may produce just as good cosmetic effects and destroy the nodules as thoroughly as the Finsen rays; but to be effective a dermatitis must be developed, which may persist for weeks, causing pain and a suspension of treatment. The editor has observed good results from the use of the Röntgen rays in cases of circumscribed lupus of the forehead, the ear and the back; but with the superficial variety of the trunk nothing has been more satisfactory than *radium* (200,000), applied every other day for ten to thirty minutes. Five treatments sufficed in one case, twelve in another and about thirty greatly relieved in a third instance. Of course, the lack of sufficient quantities of radium of a definite radio-activity precludes the chance of achieving wholly satisfactory results, and, its action being similar to the Röntgen rays, it cannot be said to present any advantages over it.

Parasitocides are successfully used in many cases, and while they possess antiparasitic power in common, they are sufficiently different in their effect on tissues to make a choice of one rest on something more than the fancy of the prescriber. Scales and crusts may be softened and removed by applications of any mild antiseptic ointment or by poulticing if needed, so that more energetic applications may come in direct contact with the tissues. When there is epidermic proliferation and hypertrophy, *salicylic acid*, from its power of dissolving epithelium, is useful. It may be used in the manner indicated above for warty formations, but not in too concentrated form when the thickening of the epidermis is moderate. Combined with *carbolic acid*, in the proportion of thirty drops of the latter to an ounce of the base, it is less painful in its action, though the pain is not usually of long duration. It can be used also in ten per cent. lanolin ointment for mild cases, but in any case should not be employed long after epidermic infiltration has been reduced. A twenty-five per cent. ointment of *resorcin* is occasionally more effective than salicylic acid for the purposes named. Carbolic acid can be used alone, painted over the lupus patch as advised by Unna, or by a steel point dipped in the acid and inserted at numerous points after the manner of Auspitz. *Creosote* may be combined with a salicylic preparation, as in Unna's plaster, but I prefer creosote in dilute form—ten to forty per cent. strength of beechwood creosote in olive oil or glycerine. When the lesion is located where a compress can be worn, saturated with the above and covered with oil silk or paper, it makes (in strength suited the case) a comfortable and effective dress-

ing, and is claimed by Gérénine to produce a minimum of scarring. Care must be exercised in the use of creosote that poisoning does not occur from absorption, especially if the surface treated is at all large. *Bichloride of mercury* in the strength of one to two grains in an ounce of distilled water, tincture of tolu, or in lanolin ointment is an effective germicide. In the weaker ointment it can be applied continuously. *Fuchsin* (one to two per cent.) and *pyoktanin-blus* have been recommended.

A good and safe application in recent cases and in superficial forms of lupus is a ten per cent. solution *permanganate of potash* applied daily with a brush until the nodules are softened; then they may be wiped away with gauze and the application renewed less frequently. In the same class of cases painting the parts twice daily with equal parts of *iodine* and *glycerine* helps to promote absorption and can be employed in the intervals when more energetic measures are suspended for any cause. *Pyrogallic acid* is selective in its action on lupus tissue and has little or no effect on healthy tissue, and is usually painless in the strength of one to ten of simple ointment; when it is desirable to excite inflammation it can be used up to thirty per cent. This may be applied spread on cloth and renewed twice daily. In cases indicating salicylic acid the latter may be combined with the former in equal parts, dissolved in collodion (one to ten) and painted over the lesion once daily. Besnier employs repeated applications of a saturated solution of pyrogallic acid in ether followed by traumaticine until a suppurative dermatitis is excited and all lupus points disappear. It must be borne in mind that a too free use of pyrogallic acid is attended with danger from absorption.

Far inferior to the antiparasitic method of treatment, and less in vogue now than a few years ago, is the employment of *caustics* for the destruction of lupus. Occasionally in the nodular form caustics are serviceable, and probably largely because they are at the same time germicidal. Of these the solid *nitrate of silver* in crayon is one of the best. The nodules and papules can be destroyed by boring into them with the pointed crayon, producing both a caustic and mechanical action. It has the advantages of being effective and exact in application, limited to the diseased tissue and in not being scar-producing, but the disadvantage of causing considerable pain, which persists some hours afterwards. Less painful, but more difficult to use, on account of its action extending beyond the point of contact with the tissue, is *caustic potash*. The stick can be covered all but its point and carefully used in the same way as the silver nitrate, keeping some vinegar or dilute acetic acid near by for use, to limit its action and relieve the pain if it tends to spread or the pain becomes severe. A combination of corrosive sublimate and carbolic acid is good, as in the following formula of Unna's:

R. Hydrarg. bichlor.....gr. 3.
 Acid carbolic.....gr. 12.
 Alcohol.....3 1. M.

A round, small, pointed hard-wood toothpick can be dipped in this mixture

and bored into every lupus papule or nodule. The pain is short. Among other caustics sometimes advised for lupus may be mentioned *ethylate of sodium, carbolic acid, arsenical paste, lactic acid, chloride of zinc paste, Vienna paste and acid nitrate mercury*.

Mechanico-surgical methods are seldom used, but will be briefly mentioned.

Excision needs to be carried so far beyond the diseased tissue in order to ensure a radical cure that it is only applicable to early lupus of small extent, or for single lesions on the limbs or trunk where a large cicatrix is least objectionable. Even in these cases it has little advantage over milder measures not usually requiring a general anæsthetic. The Thiersch or Lang method of skin-grafting may be used to minimize the loss of surface tissue.

Erasion or curetting is a quick way of removing accessible lupus tissue. It consists in scraping away the softer tuberculous growth with the dermal curette or sharp spoon. After a little experience the operator easily recognizes the sound from the lupus tissue by the greater resistance of the former, and avoids wounding it all that is possible with thoroughness in removing the lupus nodules. This method can be employed for small or large surfaces under a temporary anæsthetic, such as nitrous oxide gas, or local anæsthesia from cocaine, ice bag, ether spray, etc. Bleeding can be easily controlled by compression with antiseptic gauze bound firmly on for a few hours if needed, or in old patches where there is much scar tissue strong carbolic acid may be immediately swabbed over the surface as advised by Crocker, followed by the gauze dressing. When the bleeding has ceased, a five per cent. strength of *boroglyceride* may be smeared over the surface, and six or eight layers of borated gauze saturated with same laid over this, covered with oiled silk or rubber cloth and kept in place with bandage. This can be left undisturbed for several days, then renewed, and later, as healing progresses, a ten per cent. boric acid ointment can be substituted. Usually the wounded surface heals rapidly, and a thin, smooth scar results. If fresh nodules appear they can be scraped away with the curette or punctured with nitrate of silver stick.

Linear scarification of lupus tissue is a much slower method of treatment than by scraping. It consists in making parallel incisions well through the diseased tissue very close together with a sharp pointed knife, or with a multiple pointed or multiple bladed scarifier. These lines are crossed by others at right angles. Bleeding is checked in the same manner as after curetting, and may be followed by the same or similar antiseptic dressings, best adapted to each case, as after the latter operation. The cuts heal in a few days, and the operation may be repeated at intervals of eight or ten days. In rapidly extending lupus the incisions should be carried into the apparently sound skin so as to include the nutrient vessels probably already affected by the advancing disease. It is, in fact, in the spreading type of lupus that scarification gives the best comparative results. This is accomplished by occlusion of the vessels and by stimulating fibrous growth at numerous points, thus reinforcing nature's efforts in this line of repair. It opens, however, numerous avenues into the sound tissues, which are liable to become freshly infected unless antiseptics

are freely applied. *Iodoform*, *europhen* or *aristol* can be rubbed in directly the bleeding from the incisions is arrested, and all subsequent dressings may be germicidal in nature. When the tendency of the disease to spread is subdued, new lupus nodules appearing in the affected area may be treated as seems best by nitrate of silver, puncture, galvanocautery, electrolysis or other method.

Electrolysis may be employed to destroy isolated nodules of lupus-tissue. The silver plate with a protective rubber ring devised by Lustgarten and Gärtner can be used, attached to the negative pole of a battery for the larger nodules, and the coarse needle recommended by Jackson, in place of the silver plate, for the smaller lesions. The comparative painlessness of this mode of treatment, as well as the absence of bleeding and danger from new infection, speak in its favor for the purposes for which it is adapted.

The *electrocautery* and *thermocautery* have been advocated in the treatment of lupus. The former, chiefly by Besnier, who believes that lupus is often transmitted by the "bloody operations" of scraping, scarification with knives, excisions, etc. For this method variously shaped electrocautery knives and points are used to scarify or puncture the lupus growth. The pain is sharp, but is only felt during the operation, and if care is taken not to bring the needle to a white heat bleeding may be avoided. The chief difficulty is in limiting the destruction to the diseased tissue, the sense of touch not being very accurate for this purpose through the handle of a needle holder. The method is adapted to some cases of lupus of the mucous membranes, to secondary papillomatous or warty growths of the skin and to the destruction of recurring nodules in lupus scars, but it is never likely to be a favorite procedure in private practice. The thermocautery of Paquelin is sometimes used to destroy lupus tissue, but the dread of heat burning instinctive in most patients would restrict its employment if it had any special value over less formidable methods.

The purposes of local treatment of lupus—removal of the cause, destruction of abnormal growths and promoting healthy repair—are probably best attained in a majority of cases by the employment of photo- or radiotherapy combined with parasitocides. The closer the adaptation of these methods to the needs of each case the better will be the results obtained, not alone in the eradication of the disease, but with the production of the least cicatricial deformity. Here, also, must be estimated the co-operative value of internal medication, which to the author's mind is not inconsiderable.

The lesions of *scrofuloderma* call for local management according to their location, extent and stage of development. When latent, in the shape of swollen glands of moderate extent and not involving the skin, non-interference locally is the rule, reliance being placed on physiological and internal remedial treatment. If located on the face, neck or other exposed part and the skin shows signs of being involved it may be painted with *iodine* and the tincture carefully injected into the substance of the infiltration, in the hope that the germs may be destroyed and resolution effected without loss of the skin and

the consequent production of a scar. In a later stage, when the skin is fully involved by the subcutaneous or cutaneous scrofulous "gummata," complete ablation of the diseased parts under the strict methods of antiseptic surgery is likely to be most effective and leave the minimum of cicatricial mark behind. Enormously enlarged scrofulous glands not involving the skin are also probably best treated by *excision*, thus saving the skin with, perhaps, slight permanent evidence of the operation.

Open scrofulous sores may be treated on the same principles as other tubercular ulcers of the skin. Dilute *peroxide of hydrogen* solution or hot borated solution may be used frequently for the purpose of antiseptic cleanliness. Sometimes gauze dressings may be kept moist with one of these solutions with advantage for a time. Or following the regular cleansing and washing out of pockets and sinuses, if any, the diseased parts can be brushed over with the *bichloride of mercury* solution (one grain to an ounce of the tincture of benzoin), dusted with *euophen*, *aristol* or *nosophen*, and packed or covered with aseptic cotton or gauze held in place with adhesive plaster or a bandage. Destructive agents are not often needed, but unhealthy granulations may be scraped away with the curette, followed by the application of strong *carbolic acid* to facilitate the healing process. Sinuses may require to be laid open for the same purpose.

In the generalized form of acne scrofulosus daily or semi-daily bathing with boric acid or sublimate soap is the only local treatment needed. If the scrofulous cachexia is well marked or the patient anæmic, inunctions of cod liver oil are of service. The few lesions of the more localized forms may be painted occasionally with iodized collodion, a solution of corrosive sublimate or with an ethereal solution of pyrogallic acid.

II. INTERNAL TREATMENT.—The prophylactic value of physiological treatment has been already mentioned. It is of equal benefit in the curative treatment of tuberculosis of the skin. All available methods of hygiene may be utilized to improve or fortify tissue and bodily vigor. Change of climate, or even from the habitual scene of dwelling, is often beneficial. A diet may be selected best adapted to a given case. Easily digested fat is almost always an aid in the process of nutrition, but choice of food must sometimes be influenced by the state or powers of digestion as by the nature of the food itself. No strict dietary is advisable for the tuberculous, because the requirements of no two patients are the same, and like many matters of hygiene must be adapted to the limitations of each one.

Among drugs there are no specifics for tuberculosis of the skin, but there may be in any case a specific for the individual in the group of tissue remedies. Here individualization may be carried through symptoms into pathology sometimes with advantage in selecting a remedy. *Tuberculin* employed after the manner proposed by Koch has shrunk nearly out of sight as a curative remedy for tuberculosis. But its power of *aggravating* the tuberculous process is well established, and hence to those who believe in the efficacy of the smallest curative doses it becomes a remedy in an attenuation high enough to produce

only the faintest trace of aggravation. In slow but persistent types of lupus I have much confidence in the action of tuberculinum. The difficulty has been to find the right attenuation. The sixth decimal is probably the nearest approximate strength for all cases, administered not oftener than twice daily and suspended altogether every few days when an effect is noticeable. For other drug remedies see indication for *Arsen.*, *A. iod.*, *Aurum mur.*, *Baryta carb.*, *B. iod.*, *Cal. phos.*, *C. sulph.*, *Fluor. acid.*, *Graph.*, *Hydrocot.*, *Kali bichrom.*, *K. brom.*, *K. mur.*, *Kreso.*, *Lyc.*, *Mez.*, *Nat. mur.*, *Phos.*, *Phyto.*, *Psor.*, *Sil.*, *Staph.*, *Stilling.*, *Thuja.*

LICHEN SCROFULOSUS

(*Lichen circumscriptus*; *Lichen scrofulosorum*; *Perifolliculitis tuberculosa*; *Tuberculosis cutis lichenoides*, etc.)

DEFINITION.—The characteristic eruption of lichen scrofulosus occurs in very small, pale or yellowish-red papules, usually arranged in circles or groups, and chiefly in persons showing other signs of scrofula.

SYMPTOMS.—The eruption is often accidentally discovered, not enough discomfort having arisen from it to cause the patient to complain or seek advice. Recent papules are red; later they become yellowish or pale, sometimes fading to the normal color of the skin, but they do not change their conical form until they resolve, leaving a moderate stain behind. Occasionally a minute scale forms at the apex of the papule.

The *location* of the eruption is generally upon the front of the chest, abdomen, or sides of the trunk. In children the eruption is sometimes found on the extremities. The *course* is chronic, with perhaps little change in the lesions for months, or fresh groups appear upon other portions of the skin as the earlier patches disappear. In cachectic persons, pustules may form sometimes after a sebaceous plug has accumulated, and on the face or limbs pustular acne may coexist (see acne cachecticorium). Rarely pustular eczema about the genitals or seborrhœa of the scalp or other parts of the surface may be present at the same time. The disease occurs most commonly in youth and always before middle life. Local sensations are slight or absent, and no excoriations are seen as an effect of scratching.

ETIOLOGY AND PATHOLOGY.—The scrofulous diathesis is the main, perhaps the only cause. This is obvious in most cases from the swollen cervical, submaxillary, axillary or other lymphatic glands and tonsils; scrofulous joints, caries or other bone diseases are not infrequent, and there is often a family history of phthisis. The *pathological* cause, according to Kaposi, is a "cell infiltration and exudation in and around the hair follicles and their sebaceous glands (folliculitis), as well as the papillæ immediately adjoining the opening of the follicles." The central scale is formed by accumulated epidermis at the follicular opening. If a pustule forms it has the same seat, the follicle may

be destroyed and a scar result. The *tubercle bacillus* has been found in the lesions by a number of observers.

DIAGNOSIS.—The pale or yellowish-red, small size papules arranged in circles or groups upon the trunk, together with other evidences of struma, are sufficiently characteristic to identify the disease from all others. The papules of *eczema* do not have the same location; they are redder, may become vesicular and are attended with more marked pruritus. Both the lesions of *punctate psoriasis* and *lichen ruber* undergo changes and become more scaly, unlike *lichen scrofulosum*. The *miliary syphilide* (*lichen syphiliticus*) is rarely limited to the trunk, and other evidences of syphilis can usually be found. *Keratosis pilaris* is usually located on the extensor and outer surfaces of the extremities, and is not commonly associated with signs of scrofula.

PROGNOSIS.—This is always favorable under judicious treatment. The cachectic type of the disease may be obstinate until the underlying scrofulous taint is overcome.

TREATMENT.—This is essentially the treatment of scrofula, by physiological methods, to improve nutrition and the hygiene of daily life, fresh air, sunlight, etc. Locally inunction with some nutrient fat is of much service, such as cod liver oil, fresh butter or olive oil. Internal remedies are to be selected which cover the whole pathogenesis. See *Arsen. iod.*, *Baryta carb.*, *B. iod.*, *B. mur.*, *Cal. carb.*, *Kali carb.*, *K. iod.*, *Mez.*, *Staph.*

ERYTHEMA INDURATUM

(*Erythème induré des scrofuleux, Bazin.*)

This is a rarer form of exudative erythema, which Bazin claimed was mistaken for erythema nodosum. It occurs in single, or less often multiple swellings, superficial or deep-seated in the skin, one-fourth of an inch or more in width, but which may coalesce to form large areas of brawny induration. The deeper seated may cause at first little or no change in the color of the skin and can be felt better than seen; over the superficial lesion the skin is bright red in the early stage, later assuming a livid hue, as may also the skin over the deeper induration. The infiltration slowly resolves as a rule, but may go on to sloughing and the formation of an ulcer. The lesions are nearly always situated on the outer or posterior aspect of the leg below the knee. This disease is usually met with in public practice and is rare. It has been observed in connection with the tuberculides and in persons having general tuberculosis.

ETIOLOGY.—Girls from fourteen to twenty years of age are most often affected and usually in the winter. Shop-girls, scrub-women and others who stand for long periods at a time or whose circulation is weak, are more exposed. The *tubercle bacillus* seems to play the efficient causal rôle.

PATHOLOGICALLY, the tuberculous nature has been demonstrated, although inoculation experiments have usually been negative.

DIAGNOSIS.—It may be necessary to differentiate the *gummatous syphilide*,

which is benefited by specific treatment and which is asymmetrical in location. *Erythema nodosum* is acute, does not ulcerate or form scars and has no associated tubercular features.

TREATMENT.—This is usually that of any tubercular condition; physiological living being the aim. If ulcerations take place, antiseptic dressings will be needed. For internal treatment see indications for *Aurum mur.*, *Bell.*, *Kali. brom.*

SYPHILIS

(*Morbus gallicus*; *Lues venerea*; *Pox*, etc.)

DEFINITION.—A general infectious disease, transmitted by direct or mediate contact of infected secretions and by heredity, chronic in its course, and during which it may involve any one or more of the tissues and organs of the body.

The consideration of the disease here has chiefly to do with its cutaneous manifestations known as syphilodermata or syphilides. These are ordinarily supposed to begin at the culmination of the so-called stage of secondary incubation or as secondary manifestations of syphilis, but inasmuch as the earliest lesion of the disease very often begins in the skin no proper conception of the process can be grasped without including in its study the primary manifestations. Indeed, a better understanding of syphilis may be had by dropping altogether the artificial division of Ricord into primary, secondary and tertiary periods, and rather viewing it as a progressive infective process, influenced greatly in its course by the character of the soil in which the virus is accidentally implanted and by the treatment employed, but characterized by short or long intervals of insidious progression (not incubation) along the vascular channels, and culminating with a degree of systemic saturation which gives rise to the so-called "explosion" in syphilitic fever, pains, weakness, depression and perhaps a sudden efflorescence on the skin. More often these culminating manifestations develop slowly without necessary proportion or sameness in any two persons.

In no case can it be said from indications in the early stages that a case of syphilis will absolutely pursue on the one hand a benign or on the other a malignant course. Between the mild and transitory type of the disease and the malignant, persistent and destructive form all grades may occur. But in general it may be said that in proportion as the victim of syphilitic infection is well and vigorous, with a system not undermined by hereditary taint, previous disease, dissipation, in the same proportion is the disease likely to be mild and superficial, and as the majority of the people possess a fair degree of health and vigor so the majority of cases of syphilis pursue a benign though often persistent course.

The period of *incubation* of syphilis or the interval between the exposure to the contagion and the development of the primary lesion has been given

at the extremes of one day to about three months; in nearly all it falls between the tenth to the fortieth day, averaging about twenty-one days.

The **initial sore** or **chancre** varies in appearance somewhat according to location and exposure to irritations of various kinds. At the more common genital sites on the penis or labium the earliest perceptible change may be a minute red spot which in eight or ten days grows into a well-defined nodule, becoming gradually hard during the following two or three weeks. Superficial erosion of the surface only may take place, or an ulcer may form bounded by an indurated but non-elevated border, constituting the "Hunterian chancre." Sometimes only a desquamating papule appears (or with exceptional rarity a small dusky spot), which without ulceration disappears rapidly by reabsorption, perhaps without the patient's having been conscious of its presence. These small and innocent looking lesions are easily overlooked or lightly estimated even by physicians. Occasionally chancres simulate closely herpes progenitalis, or they may become ecthymatous from irritation, pus production and crusting. The induration may be spread out, forming a parchment-like lesion, or the new growth may be distributed in ring shape (annular chancre), and sometimes there occurs an excessive cell infiltration forming an elevated lesion, which may rarely become covered in the centre by a greenish membrane, the so-called "diphtheritic" chancre. It is well to remember that the primary sore may vary widely in size and appearance, and may coexist with or follow herpes, chancroids or other mixed infections, occasionally resulting in considerable destruction of tissue. Usually the primary sore has a tendency to heal slowly, rarely lasting less than eight weeks when unmodified by treatment, and occasionally its course is protracted for a year or more.

About ninety per cent. of all cases of primary syphilis begin on or about the genital organs, and in the male are situated on the frenum, inner surface or margin of the prepuce, the glans, at the orifice or within the orifice of the meatus, on the skin of the penis and occasionally on the scrotum. In the female they are most common on the inner aspect of the labia majora, the nymphæ, less often on the clitoris, os uteri and rarely in the vagina. In about ten per cent. of all cases the initial sores are extra-genital and very frequently are accidentally or innocently acquired (syphilis insontium). The more usual location of extra-genital chancres are the lips, mouth and throat, breast and nipple, fingers and hand, eyelids and conjunctiva, chin, cheeks, nose, arms, and rarely in almost any region of the body. Besides, a large number of chancres have been ascribed to infection at the time or subsequently to the slight operations of vaccination, cupping and bleeding, circumcision and tattooing.

The well-defined induration characterizing chancre of the genitals five or six weeks after infection is not always apparent in extra-genital sores, owing largely to anatomical differences; on the lip, for instance, there is seldom any marked induration. Neither is there much, if any, induration in chancres of the nail bed, while a primary sore in the cheek may be quite obscured by the attendant cedema, and sometimes reach an enormous size and simulate malignant disease.

Syphilitic chancre is usually single, but it may be multiple according to the number of points inoculated at the time of contagion or during incubation. As a rule, when the sore has developed it affords protection against further infection, though the immunity is not always certain or permanent. Consecutive with the cellular infiltration of the chancre the nearest lymphatic glands become swollen and hard, and other connecting or distant glands may become affected, showing the distribution of the poison from the primary sore going on throughout the system. The enlarged glands show no sign of inflammation and are rarely tender. At the acme of this insidious progression of the disease into all parts of the body various resulting disturbances may arise early or late. These may be enumerated as *syphilitic fever*, which rarely exceeds 102, but may reach 104 or 105 at times at the nightly exacerbation; disorders of the nervous system, such as neuralgia, especially of the fifth nerve, derangements of sensation and reflexes, nocturnal headache, insomnia and exceptionally mental derangements, rheumatoid pains at night, cold feet and hands; anæmia, cachexia and asthenia, sometimes amounting to a typhoid condition accompanied with splenic enlargement; jaundice; albuminuria and sometimes temporary nephritis. These and other less common indications of systemic infection vary in different persons to a remarkable degree, occasionally are altogether absent, and the cutaneous eruptions may be the only signs of syphilis.

SYPHILIDES

The cutaneous manifestations of constitutional syphilis may appear at any period in its course, and while no strict chronological order is always observed, each lesion has its favorite period of occurrence.

The pathological basis for the syphilodermata rests on two processes in the skin—*hyperæmia* and *cell-infiltration*; in a general way it may be said that the first characterizes the earlier and more superficial lesions, and the cellular the later and deeper lesions in proportion to the duration of the syphilis. These two processes alone or together with various subsequently induced changes give origin to numerous and varied forms of eruption; so much so that some one has described syphilis as an "imitator of other diseases." The resemblance to other eruptive diseases is natural, inasmuch as the same anatomical parts are involved in all by an inflammatory process, but which in the case of syphilis (and some others) is dominated by a specific cause. The imitation therefore is hardly more than objective and is usually overbalanced by distinct differences. These characteristic differences, each alone of little diagnostic value, together form a significant clinical group, and may be studied in general contrast with the simple eruptions of other diseases.

The *course* of cutaneous syphilis is nearly always slow, both in development and decline, and is seldom attended with the inflammatory features of simple eruptions. Occasionally an active erythematous or papular eruption of the early period may be attended with pronounced systemic reaction, fever, and

closely simulate an exanthem, but the apparent acuteness of the syphilide very soon passes into a subacute course. Sometimes local irritations produce associated congestion and inflammation of the later syphilides. Another feature is the tendency to evolution in crops, often with a variation in the eruptive elements, papular and other lesions frequently appearing before the preceding lesions have reached their full development.

This *polymorphism* of the early syphilides occurs in the majority of cases, and macules, papules, pustules and scaly lesions may coexist in all stages of evolution and decline, or successively exhibit their varied phases in transition of one form into another. Multiple forms of eruption never occur to the same extent in non-specific diseases.

The *order of evolution* of the syphilides while not absolute is sufficiently so to be characteristic. With few exceptions the skin is involved from without inwards—from the more superficial to the deeper parts. At a variable interval, averaging about six weeks after the development of the primary sore, the so-called secondary eruptions begin to appear as a result of a contamination of the blood with the special virus. Hence, like the eruptive fevers, they are usually symmetrically if not generally distributed. The most superficial, or the hyperæmic macules, are the first to occur, followed by the deeper but still superficial papules; and when the intensity of the process is sufficient, these may be accompanied or succeeded by pustules, etc. Thus the kind of lesions present are somewhat indicative of the age of the disease.

The *papule* is the most typical of the secondary lesions, and occurs in varied forms, to be described later. The eruptions of this period of constitutional syphilis, which is supposed to last about two years, are seldom constant. They tend to disappear spontaneously at variable intervals, and to recur again and again until the virulence of the syphilitic process is worn out or controlled by treatment. With the termination of this limited stage of systemic syphilis may end all manifestations of the disease. In a minor per cent. of cases the poison may leave behind definite tendencies to morbid cell growths, which may become active at once or remain latent for months or years, and then under some favoring condition of nutrition suddenly exhibit vitality and find expression in some form of non-virulent or *tertiary* syphilis.

The *tubercle* is the typical lesion of tertiary syphilis of the skin, as the papule is of the earlier stage. The tertiary syphilides in comparison with the so-called secondary lesions are characterized as follows: They are much less constant in occurrence; when they do appear they are without order of succession; they are asymmetrical, localized, deep-seated, tend to persist and spread, cause local destruction of the tissue and leave permanent scars; they do not yield to mercury in full doses, but may be often arrested with iodide of potash. Lastly, though they may recur during the patient's life they are at no time contagious or inoculable.

It must be remembered that the foregoing applies more or less accurately to the typical evolution of the syphilides, which may vary greatly in intensity, in the number and extent of the lesions and their several duration and succe-

sion. Very rarely there may be an almost complete reversal of the law of syphilitic evolution, and deeper lesions common to the tertiary period may antedate the superficial eruptions of the secondary period. This has been termed *retrogressive syphilis*. In another irregular type the usually late and deeper tubercles, gummata, etc., develop before the early and superficial macules, papules and pustules subside, or follow closely their decline and pursue an acute non-destructive course defined as *rapid benign syphilis*. Less often the rapid, violent and extensive involvement of the deeper tissues assumes a malignant destructive course known as *precocious malignant syphilis*.

Lesser irregularities in the evolution of the syphilides, such as the predominance or persistence of one kind of lesion, the moderate occurrence of the early lesions in the late or tertiary period, or lesions of the latter within the limits of the secondary stage, are not so very uncommon.

In *location* the syphilitic eruptions of the secondary stage resemble the exanthemata in being more or less generalized, but do not show much tendency to imitate simple eruptions in localization. In fact, in certain areas such as the sternal, the supra- and infra-clavicular regions, and the dorsal surfaces of the wrists, hands and feet, where inflammatory eruptions are often seen, the syphilides seldom appear. The form of the eruption apparently determines the location to a great extent. The macular syphilide is commonly found on the chest, trunk and flexor surfaces, but rarely on the face and neck, where the papular form is often seen. The latter also shows a predilection for the forehead, at the margin of the hairy scalp, the limbs and trunk. The pustular syphilide is prone to appear on the hairy parts of the scalp, face and other regions well supplied with sebaceous glands and hair follicles. Moist papules or mucous patches occur almost exclusively on the warm or moist region of the body. Tubercular and other late syphilides may develop almost anywhere, though the erythematous and rupial forms, like non-specific lesions of the same type, show a preference for the legs.

The tendency of some syphilides, especially the small papular and relapsing erythematous, to become *grouped* in curved lines, circles or segments of circles is sometimes quite marked, and is probably due to the anatomical arrangement of the capillaries of the particular areas. Circinate lesions also occur from the involution beginning in the centre of large papules or tubercles, leaving the periphery to disappear later or advance further in a regular or irregular way as it recedes centrally. Herein is exhibited a pathological law of syphilitic infiltration of the skin, in that it increases and undergoes involution both in a centrifugal direction. Even in the destructive forms of retrogression this holds true in some degree, and serpiginous, horseshoe and crescentic shapes of ulcerative lesions are quite characteristic.

The *color* and *pigmentation* of the syphilides are not so characteristic as is generally supposed, like changes occurring with or after some other diseases. At first the color is often a pinkish-red, only slightly more subdued than simple eruptions, and disappears on pressure. Later it fades to a brownish-red, yellowish-brown, or coppery tint, due to the deposit of pigment matter from the

blood and to subsequent changes which give a certain permanency to the stain. On the lower limbs and in other dependent portions the color may be early of a bluish or dark red, from combined blood stasis and pigment staining. Both the hyperæmic tint and pigment coloration are modified by the normal texture and complexion of the skin, and, as has been shown, by the age of the eruption.

Rarely pigmentation occurs independently of other lesions and is then known as the *pigmentary syphilide*.

The *scales* of syphilis are characterized as thin, superficial, scant, dull white or yellowish in color and non-adherent compared with the same product of like simple eruptions.

The *crusts* of syphilitic pustules and ulcers are quite distinctive. They are grayish, brownish or greenish-black in color, rest upon indurated base and are easily detached; they are thicker than the crusts of simple lesions and are built up in layers from the secretions formed beneath. If of large size (ecthymatous or rupial) they may seem to almost float upon a base of liquid pus; and the conical, laminated brownish-black crusts of the rupia type, which may slowly attain a large size, are pathognomonic. The brownish-black, rough, dirty, oyster-shell-like crusts of late syphilitic ulcers are also characteristic.

The *ulcers* of syphilis may be round, oval, crescentic or horseshoe in shape, due to both the enlargement and the subsequent healing taking place more or less regularly from within outwardly. Hence, the margins are generally regular and their edges perpendicular. The floors may be grayish or present a membranous appearance, bathed with a sanious pus and the lesion bordered by a reddish areola.

The *cicatrices* of syphilis are often diagnostic. They are distinctly round or oval in shape; at first reddish-brown in color, they gradually fade from the centre to the periphery until when mature there is left a white, smooth, shining, more or less depressed pliable surface, bounded by a narrow areola of brown pigmentation, which is usually very persistent. Near the joints syphilitic scars may be traversed by fibrous bands; more often they are smooth or only minutely perforated at the follicular opening.

A common negative characteristic of the syphilides is the *absence of pain or itching* during the entire course. If the process is unusually acute or the lesions are subject to external irritation they may be sensitive or painful, and when situated in warm or moist regions of the skin or occurring in the eczematous they may be attended with sensations of itching. Frequently patients are unaware of the existence of the eruption until it is accidentally seen.

The *action of mercury* in the system in causing the disappearance of the syphilodermata of the secondary group is characteristic. There are occasionally exceptions, but its influence over the infiltrating lesions of this period is remarkable and may be of diagnostic value.

The *course of the syphilides* may be hastened, interrupted or modified by some *intercurrent diseases*, which, however, do not affect the syphilitic diathesis sufficiently to often prevent ultimate relapses. Such effects have been noted from the occurrence of acute febrile attacks of various origin, scabies, miliaria

rubra, furuncles, etc. On the other hand, syphilis beginning during the course of non-specific eruptions may be aggravated and prolonged by them, especially as regards eczema and seborrhœa. Occurring in scrofulous and lymphatic individuals the syphilides are not only liable to be more severe, but to partake somewhat of the character of the earlier diathetic affection.

Many and varied influences may act to modify or aggravate the behavior of the syphilides in one or more directions; among them idiosyncrasy, age, climate, general and personal hygiene, alcoholism and local irritations and infections. These are not peculiar to syphilis, but it is these and other accidental and incidental agencies and the reactions they call into play in the organism, rather than the elementary lesions, which account for the multiple and confusing manifestations of the disease. They give *individuality* to each case and afford a scientific basis for remedial therapeutics inclusive of specific remedies for a specific virus.

Various *classifications* of the syphilides have been proposed. The division of Leloir into two groups, resolute (secondary and non-destructive) and non-resolute (tertiary and destructive), has the advantage of being simple and in harmony with the prevailing tendency to gross pathological change; but it fails to give place to the usual order of occurrence of the different lesions or of the kind of lesions as commonly considered in the study of other eruptive diseases. Modifications of the plan of Cazenave based on the form and pathology of the lesions and grouped in the order of their occurrence in typical cases have stood the test of general usage long enough to establish its value for practical study. In this the erythematous, papular, pustular and tubercular represent the elementary types of eruption, while their blending together and changes from secondary processes are designated, as in simple affections, by compound terms, such as papulo-vesicular, ecthymaform, etc. Rare accidents of pigmentation or hemorrhage make a fifth division. This arrangement of lesions may be seen at a glance in the following table:

I. <i>Erythematous form.</i>	{ Macular, Maculo-papular.	{ Due to hyperæmia with slight infiltration.
II. <i>Papular form.</i>	{ Miliary papular, Lenticular papular, Papulo-squamous, Moist papular.	{ Due to circumscribed follicular or papillary infiltration.
III. <i>Pustular form.</i>	{ Varicellaform and Variolaform, Acneform, Impetigoform, Ecthymaform, Rupial, Pemphigoid.	{ Due to infiltration with superficial suppuration or ulceration.
IV. <i>Tubercular form.</i>	{ Tubercular, Gummatous.	{ Due to deep infiltration with a tendency to ulceration.
V. <i>Pigmentary form.</i>	{ Pigmentary syphilide, Purpuric syphilide.	{ Due to extravasation of blood constitution.

I. **The erythematous syphilides.**—(Syphilitic roseola; exanthematous syphilide; erythema syphiliticum; macular syphilide, etc.)

This is usually the earliest syphilitic eruption; it commonly occurs in the seventh week after the primary sore and is usually preceded by moderate syphilitic fever. Sometimes it appears earlier, but rarely later, though relapses are not infrequent. It may be distinctly macular or less often maculo-papular in form.

The *macular syphilides* occur in round or oval spots with irregular or ill-defined margins and averaging about one-third of an inch in diameter. At first their color is often a bright pink or rose-red and disappears on pressure; but in a few days to four weeks they assume a bluish, grayish-brown or coppery color, which is only partly or not at all changed by pressure. Occasionally they may disappear without the latter change in tint, and sometimes the color is so faint as to be hardly noticeable unless seen obliquely. Single patches develop in about two days, and the whole eruption may appear in seven to ten days. Exceptionally from the intensity of the poisoning or some exciting cause the efflorescence may invade the whole surface in one day.

Usually the eruption occurs earliest and most abundantly over the chest and abdomen, next upon the upper portion of the extremities, neck and back. Occasionally the eruption is widely or generally distributed, though it seldom invades the face or the dorsal surface of the hands and feet. In rare instances it may begin upon the face; quite commonly it is confined to the trunk. The lesions may be few or many; they show, as a rule, no tendency to become elevated, to coalesce, to form circles or to become scaly. The eruption seldom disappears before the end of a week, and rarely lasts more than a month, leaving behind a brownish-gray stain. Relapses may occur during the first year, and small circinate forms may appear in the second or third year of syphilis or even later, and prove rebellious to treatment.

This syphilide probably occurs in nearly every case; but slight constitutional disturbances, absence of local sensations, moderate coloration of the skin and limitation to the covered portions, or in some cases the presence of other and more pronounced eruptions, may cause it to be frequently overlooked.

The *maculo-papular syphilide* occurs from a more intense hyperæmia than is present in the macular form. In comparison with the latter the spots are a deeper red, slightly elevated, change to darker or a purplish tint, and have developed over them without definite order small papular formations. These may be confined to the hair follicles and consist of hyperæmic punctæ, or of slight cell growths at the follicular opening (*granular roseola*), or again of very moderate papillary cell increase, sometimes called *roseola urticata*. Very often the papular lesions have a tendency to form circles or parts of circles.

The maculo-papular syphilide is apt to be preceded by more constitutional disturbance than the distinctly macular and to be more prompt and rapid in its invasion, more persistent and chronic in its course, and often exhibits more or less desquamation throughout.

Occasionally the erythematous syphilide may exist with and follow the

evolution of seborrhœic dermatitis in its development, especially when situated on neck, face and thorax. The initial lesion as well as the secondary eruptions and symptoms of the disease may also coexist with this syphilide in some parts of its course. Syphilitic alopecia and more rarely iritis may occur.

DIAGNOSIS.—Chief reliance may be placed on the presence of an initial lesion or induration left at the point of inoculation, on the enlarged glands and constitutional symptoms, together with the form of hyperæmic patches, pigment stains and the exemption of exposed surfaces.

In the early stage it might be mistaken for the rash of measles, scarlet fever or the erythema from the ingestion of drugs. The more frequent occurrence of the eruptive fevers in children and the syphilides in adults, the different onset and absence of the catarrhal symptoms of *rubeola*, or the throat symptoms of *scarlatina*, strawberry tongue, etc., will serve to exclude the two last diseases.

Drug erythemas from copaiba, cubebs, mercury, the coal tar products, etc., soon disappear after the causal drug is suspended, leaving no trace, as a rule. In such cases a history of the use of the drug is usually obtainable, and the case will, in the absence of syphilis, show none of the concomitant signs of that disease, such as the initial sore, infiltrated glands and some of the group of constitutional phenomena.

Tinea circinata when of a pinkish-red color may simulate the erythematous syphilide. The single or comparatively few lesions, lack of symmetry, greater scaliness, usual occurrence in children, and in doubtful cases an examination of the scales for the ringworm fungus will always distinguish the former from the syphilide.

Tinea versicolor can never give much trouble in a differentiation from the macular syphilide, although the color and location may be very similar. The ease with which the pigmentation of *tinea versicolor* can be rubbed or scraped away while the syphilitic patch would remain unaffected or become more hyperæmic from the friction, and the great abundance of the *microsporon furfur* in the scrapings from the *tinea versicolor* would never leave any room for doubt as to the presence of the latter. Its usual history of long duration and an absence of any evidence of syphilis would be further distinguishing points.

Pityriasis rosea has a like distribution and duration as the macular syphilide, but its lesions are larger, more scaly and there is an absence of staining and the concomitant symptoms of syphilis.

II. The papular syphilides.—The circumscribed infiltration of the superficial structures of the skin, or the *papule*, is the most important of the secondary accidents of syphilis, and occurs in two primary forms—the *miliary* and the *lenticular*.

The papular may be the earliest manifestation of cutaneous syphilis, either alone or combined with the erythematous lesions; or they may follow the latter and constitute the chief recurring eruption of the whole secondary period. They may even persist into the tertiary stage and by intermediate papulo-tubercles merge into the tubercular syphilide. Commonly, however, they do

not appear before the fourth month or recur after the end of the second year. They may be more or less disseminated in the earlier stage, but the later the appearance, or with each successive recurrence, they tend to develop in circular groups and show a more marked predilection for certain regions. The region and structure of the skin determine in part their subsequent behavior. Thus, on the scalp they tend to assume a crusted form; on the general surface to become scaly; at the angles or folds of the skin, corners of the mouth, between the toes and fingers, etc., to the formation of painful cracks; on the palms and soles they tend to persist and simulate psoriasis; on opposing surfaces, especially about the genital and anal regions, they are apt to become moist and extensive.

Any or all the variations of the papule may coexist at the same time, but their size, form, mode of evolution, etc., are sufficiently distinct to be classified in four subdivisions. These are the miliary papule, the lenticular papule, the squamous papule and the moist papule.

The *miliary papular syphilide* (syphilitic lichen) is the least common of all the papular forms of eruption and occurs chiefly in females. The lesions consist of an infiltration of the follicular structures of the skin (follicular syphilide), and vary in size from a pin's head up to double or treble that size. The *smaller* variety is quite rare, and Crocker says his cases were all females. The lesions consist of minute, conical elevations, of a bright red color; at first they soon fade to a fawn or coppery hue, and on involution of the papule leave a bluish or brownish-red stain. This eruption, which may occur in the first or second year of the disease, is often generally distributed in groups of four or five up to forty lesions. These are usually most abundant about the face, neck, sternal region and back of the shoulders. The eruption often appears rapidly, is persistent and new lesions may continue to appear for several months. Sometimes a minute vesicle forms at the apex of the papule (miliary papulo-vesicular syphilide), which dries in a few days, leaving a superficial scale. In other cases the process may be intense enough to form a minute pustule (miliary papulo-pustular syphilide), which results in the formation of a minute crust. The *larger* miliary syphilide is not so infrequent as the small variety. It has the same seat on the follicles and is most commonly seen on the back, extensor surfaces of the extremities, neck and anterior part of the chest, but it may be more generally distributed. The lesions are larger, rounder, fewer and occur in less regular groups than in the first form. Frequently the epidermis over the body of the lesions exfoliates, leaving a fringe of whitish scales around the papules. They seldom appear or reappear after the first year of the disease, though it is to be borne in mind that large papules may coexist with smaller lesions without special order or arrangement in location or time.

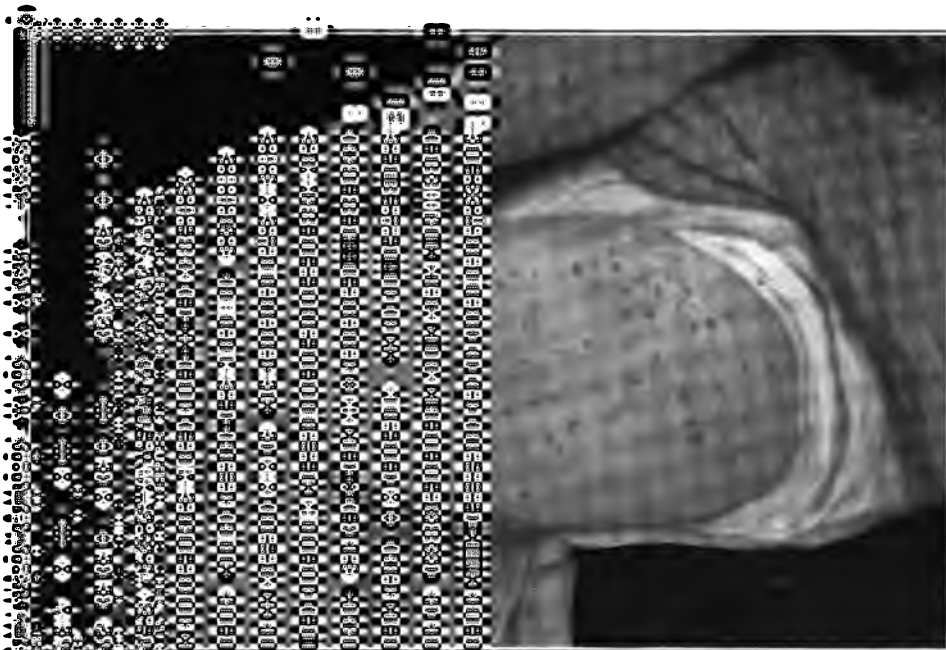
DIAGNOSIS.—The only disease likely to be confounded with the miliary syphilides is *lichen scrofulosus*. The latter occurs in childhood, rarely after puberty and never after thirty, and though situated in the follicles and grouped like the syphilide, the eruption is nearly always confined to the trunk,

while the syphilide is unusual in childhood and has a wider distribution. Moreover, lichen scrofulosus is almost invariably associated with other evidences of scrofula, and the miliary papular syphilide with other signs or a history of syphilitic infection.

The *lenticular papular syphilide* (large papular syphilide) is the most common, extensive and persistent eruption of the secondary period. It may occur early before the macular form has disappeared or follow it closely, and in successive crops continue to recur during the first two years. Occasionally it is one of the relapsing manifestations of late syphilis. The lesions are at first small and gradually increase until they attain a sixth to a half inch in diameter; they are roundish, flatly convex, well defined and only slightly elevated. As they develop the color changes from a bright red to a shiny coppery hue, the epidermic covering desquamates, leaving the same fringe-like color about the base mentioned as occurring with the large miliary lesions. With succeeding desquamations the papules become flatter and gradually disappear, leaving at their sites grayish or brownish and persistent stains. In the early stage the lesions are apt to be numerous and widely distributed, but are not often grouped, though they may be closely situated about the genitals, forehead and mouth. Occasionally when numerous or near together they may coalesce to form broad patches. They show a predilection for the forehead (constituting along the margin of the hair a form of the *corona veneris*), lower part of the face, back of the neck and shoulders, the flexor aspects of the elbows and knees, the genito-anal regions and the palms. Fresh crops may appear before the preceding lesions have resolved, and sometimes papules may be seen in all stages of evolution and involution. With each successive crop the lesions diminish in number and increase in size until the latter outbreaks may consist of only a few grouped papules within limited regions.

DIAGNOSIS.—This characteristic syphilide is easily recognized. Its form, mode of development, color, etc., are practically diagnostic, and the frequent association of other signs of syphilis—mucous patches, glandular infiltration, alopecia and the absence of subjective sensations—will remove all doubts as to its nature. Some of the larger lesions may resemble the tubercles of *leprosy*, but the different origin, development, concomitants and behavior under treatment would serve to identify the syphilide, even with the possible association of the two affections.

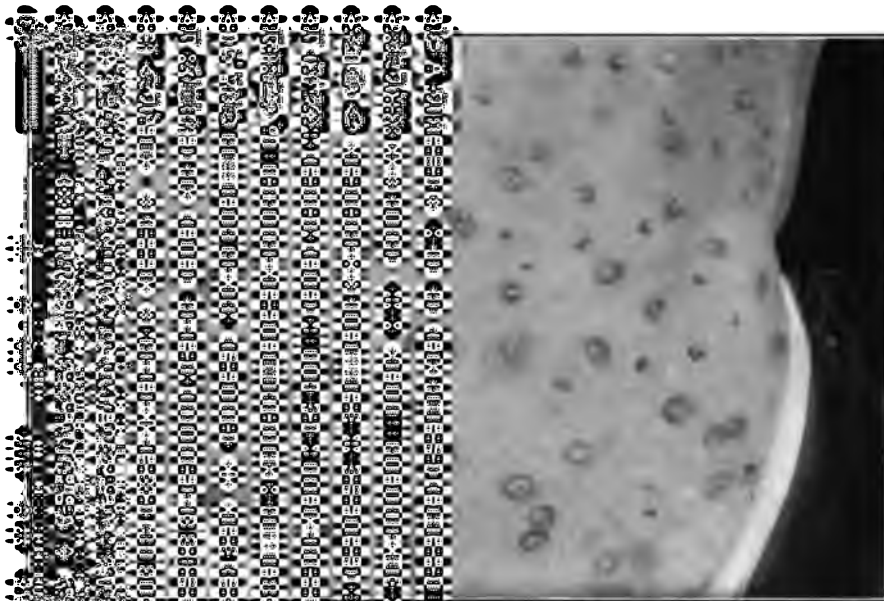
The *papulo-squamous syphilides* (nummular syphilide; syphilitic psoriasis, etc.) are really common modifications of the large papular form, due to various influences probably largely resident in the skin affected. Whatever the cause may be, there occurs, consecutively with the syphilitic infiltration of the derma, an increase in the superficial layers, with a more or less marked proliferation of the epithelial elements, and resulting in the accumulation on the surface of the papules of dry, dirty, grayish, often thick and friable scales. Exceptionally the scales may be horny, dense and adherent. Any papular syphilide may exhibit a scaly formation from the first up to



PRIMARY SYPHILIDE

PAPULAR VARIETY

who developed a primary sore four months
 eight weeks later and the present eruption about
 vex, a coppery-red color, and are generalized,
 ties.



SECONDARY SYPHILIDE

PAPULO-SQUAMOUS VARIETY OF THE BACK

history of primary infection twenty months
times for one year and a half. The present
months, chiefly on the face, back and chest.
first to appear are round or oval papules free
degree of scaliness.

the acme of development, or only in the stage of decline, but it is only when the scaliness is comparatively abundant and persistent that it gives clinical character to the eruption. The resemblance of some of these lesions to psoriasis led to the use of the term *syphilitic psoriasis*, though the scales are rarely pearly or silvery white as in the nonspecific disease. The mildest type of the papulo-squamous syphilide is rare and presents only a furfuraceous desquamation of rounded, slightly raised patches here and there, known sometimes as *syphilitic pityriasis*.

The most common type is observed in the larger and deeper papules of the latter part of the first year, or less often in the second year, of the secondary syphilis. The eruption comes out in crops, tends to persist for months if untreated, but finally undergoes involution in the same manner as the non-scaly papule and leaves the same kind of pigmentation. Involution seldom occurs in all the lesions at once, so that often they may be seen in all stages, especially when they are numerous and extensively distributed, as is the case frequently. The favorite sites for the more marked scaly papules are the face, along the eyebrows, at the margin of the hair, about the mouth, nose and chin, on the palms and soles, and the flexor aspects of the limbs and trunk. No part of the surface, however, is exempt from the liability to this form of syphilide. The lesions are usually discrete, but occasionally coalesce on the lower part of the face and in the neighborhood of the genitals.

Another modification of the large papule is characterized by progressive peripheral enlargement until it reaches the size of a coin, sometimes an inch in diameter, and is termed the *nummular syphilide*. These lesions may become scaly or undergo repeated desquamation, leaving a scaly fringe at the border; they present well-defined and sometimes elevated margins, which, together with a slight depression in the central portion, may give them an umbilicated appearance. The process of involution may go on in the central part to completion, leaving a hard, scaly ring of infiltration bounding an atrophic and depressed centre. Thus the nummular is transformed into the *annular* or *circinate syphilide*. Adjoining ring-shaped lesions may meet together and by fusion at the points of contact form figurate or gyrate-shaped lesions, which, covered with thick, whitish, friable or compact scales, strikingly simulate the same shaped lesions of psoriasis.

The circinate syphilide (orbicular syphilide) is sometimes formed by a linear mergence of smaller papules arranged in the form of a circle or segment of a circle. These and other sinuous rows of papules may, by union, form various festooned or figured lesions. Sometimes a large papule is surrounded by a row of smaller papules known as the *stellate syphilide*. Indeed, the multiple forms resulting from the intermingling and union of the primary and transitional forms of the papular and papulo-squamous syphilide are as remarkable as they are rare. Many of the common circinate syphilides are attributed by Unna to the combination of the seborrhœic process and syphilis. Where the sebaceous glands are abundant their secretion often mingles with the product of the syphilitic lesion and broken down epithelium and forms

a crust, constituting a form of papulo-crustaceous syphilide. These are most often seen on the hairy parts of the face. In favoring locations, as about the genitals, mouth and alæ of the nose, there may be added to the epidermic overgrowth more or less papillary hypertrophy, producing warty vegetations covered with scales and sebaceous matter.

Papulo-squamous syphilide of the palms and soles is so different from the same lesion elsewhere, owing to structural peculiarities of these parts, as to usually receive a separate description. Unlike other papular syphilides, it has no definite limit as to the time of appearance. If it develops in the first year it is apt to form only a part of the syphilitic eruption and is easily recognized; more often it appears in the second year and is persistent under treatment. It may recur again and again for years. In a case of supposed syphilis of the nervous system, seen by the writer, these lesions were found on the soles of the feet, and the patient gave a history of a similar recurring eruption at times during the previous fourteen years since the primary infection. The resemblance to psoriasis of the same parts has led to their designation as palmar and plantar psoriasis, though they may sometimes simulate eczema more closely.

On the *palm* the lesion usually appears first in the central part as a slightly colored to a coppery red spot covered by the firm, translucent, scarcely elevated epidermis and varying in size from a pea to a cherry; at an early stage it may not be perceptible to touch, but soon the epidermis thickens, becomes opaque, is gradually raised, splits up into lamellæ or is thrown off in one mass. There is left a reddish, round or angular spot bordered by undermined skin which by serpiginous extension or concentric growth may extend to the border of the palm or even creep up the side of the hand or into the interdigital spaces. The papules may remain discrete or coalesce together and form various shaped patches which tend to heal in the centre and extend at the periphery by the formation of fresh papules. Thus the whole palm may sometimes be involved. When the deeper natural lines of the palm are included in the lesion, fissures may form in their place, extending into the corium, and become annoying and painful. The habitual use of the hands and their exposure to various irritations tend to add to the chronic course of this syphilide.

On the *feet*, which are habitually protected, the course, while presenting much the same features, is not so protracted for the reason stated, though fissures on the feet may be deeper, corresponding to the thicker epidermis and become sometimes the seat of an obstinate ulceration.

Occasionally the papulo-squamous syphilide of the palms (less often the soles) seems to expend its obvious force upon the epidermis, and the corneous layer becomes piled up in hard conical elevations (corneous syphilide). These accumulations can be separated and lifted out of a crater-like cavity in which they seem to have been fixed.

In the secondary period palmar and plantar syphilides are likely to be symmetrical; in the later or advanced stages they may affect only one palm or sole and are probably often excited by some local irritation.

DIAGNOSIS of the papulo-squamous syphilide of the secondary period is rarely attended with difficulty.

From *psoriasis* it may be distinguished by the tendency of the syphilide to occur on the flexor surfaces of the body, on the face and neck, in lesions nearly uniform in size, and covered usually with dirty white, scanty scales, which do not completely conceal the color underneath and are easily detached without exposing red or bleeding points. *Psoriasis*, on the other hand, predominates on the extensor aspects of the body, particularly in its early evolution on the elbows, knees and on the scalp; the spots are seldom uniform in size, are often nearly or quite covered with abundant, pearly, adherent scales, which if forcibly removed leave red or bleeding points. Moreover, in *psoriasis* there is a history of a long course or of previous attacks of the same form of eruption. In the later stages a few lesions of the papulo-squamous syphilide may assume in course and configuration nummular, circinate, figurate shapes, so closely like the characteristic forms of *psoriasis* as to require the greatest care in differentiation. But a minute examination will rarely fail to show the differences in scales and base of the lesions above noted; the darker (coppery) red color of the syphilide, the succeeding pigmentation, which, together with the history of onset and course, will make clear the diagnosis. It is to be kept in mind that pigmentation sometimes occurs at the sites of psoriatic lesions, especially when the patient has had a long course of treatment with arsenic.

A symbiosis of the syphilitic seborrhœic process in the skin may result in lesions very similar to those of *seborrhœic dermatitis*. The latter may be excluded by the history or presence of specific chronological or associated symptoms of the syphilitic infection.

On the palms or soles the late papulo-squamous syphilide may be easily mistaken for *psoriasis* or eczema. *Psoriasis* rarely invades these parts, and is extremely rare without typical lesions elsewhere on the body. It shows no tendency, like the syphilide, to begin in the centre of the palm. By some a psoriasiform condition of the palms is considered pathognomonic of syphilis.

Squamous *eczema* and syphilis of the palms and soles are more likely to simulate each other. Eczema of the palms, however, almost invariably begins between or at the roots of the fingers, on the wrist or dorsal surface, and thence spreads to the palm; it pursues a slow, more even course, the infiltration merging usually at the periphery in a hyperæmic redness of the adjacent skin, and it is attended with pruritus, often with the presence or history of moisture, discharge and crusting. Syphilis commonly begins in the palm and spreads outwardly by the development and coalescence of new papules, forming at the periphery an irregular and abruptly defined border of infiltration next to the sound skin. In long standing cases the distinguishing differences may disappear and it may be impossible to differentiate the two affections without first witnessing the effect produced by specific treatment.

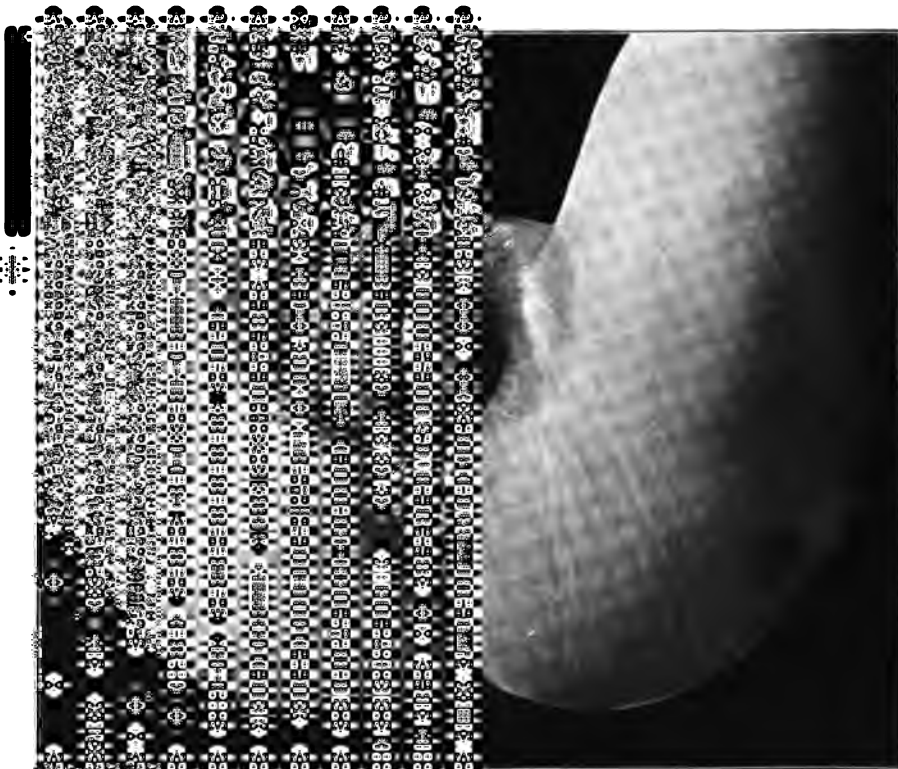
The moist papular syphilide (*mucous patches, condylomata lata*) is a modification of the papular form of syphilide due to location on warm, moist and often unclean surfaces of the skin, more frequently near the mucous outlets.

It is more commonly seen in women than in men, and may be the only outward evidence of the disease in the former. These lesions are frequently seen at the junction of the skin and mucous membranes of the anus and vulva, in the natural creases and on opposing surfaces of warm or moist parts, as under the breasts, about the genitals, in the inguinal and axillary regions, between the toes, etc. These lesions are very contagious and a common source of infection. They occasionally originate from an erythematous or eczematous surface without the papular formation. Ordinarily they arise from papules due to considerable papillary infiltration and free proliferation of the cells of the mucous layer of the epidermis, and may be small or large elevations up to a half inch in diameter. Usually the epithelial covering becomes transformed by heat and moisture into a grayish membrane, which separates or is accidentally removed, leaving an eroded, soft, moist, reddened surface, similar to a mucous membrane; hence the term mucous patch. Local irritations, friction and other influences incident to location and habits, as well as the treatment employed, largely determine the further course of the moist papule. It may rapidly disappear under care and treatment; left to itself it may take on a diphtheroid covering, or become crusted over with the dried secretion and epithelium. Sometimes ulceration follows and it is depressed below the surface, and the source of an offensive secretion. Again, it may take on a papillary growth, especially about the arms and genitals, which elevates it about the tenth of an inch above the surface, constituting a vegetating lesion known as *condylomata lata*. These may coalesce more or less to form irregular cauliflower-like patches, furrowed with fissures, and in the uncleanly, especially between the toes, yield a brownish and foul secretion.

Moist papules are usually seen only in the secondary period of syphilis, but they may appear later, even in the late tertiary stage. In all cases they tend to persist and relapse for weeks or months, and untreated may continue indefinitely. Mucous patches, unlike other syphilitic eruptions, are sometimes the seat of itching, especially where they are exposed to friction or pressure.

DIAGNOSIS of the moist papules and condylomata is rarely attended with difficulty. Their situation in certain regions, mode of development and form, together with other lesions and concomitant symptoms of syphilis make their nature plainly apparent in most cases. Non-syphilitic venereal vegetations usually overlap their base and are distinctly branched or pedunculated. The syphilitic vegetations are as broad at their bases as on their outer surfaces. Rarely when subject to pressure the non-syphilitic papillary growths may present a closer resemblance to the syphilitic, and the associated symptoms and history of the case will be needed to establish a positive diagnosis. At the margin of the anus mucous patches may be mistaken for simple anal fissure. The former has more rounded and fuller edges, and is often covered by a grayish film or pellicle.

III. **The pustular syphilides.**—This group of eruptions are less common than the erythematous and papular syphilides, but important from their variation in size, number, mode of evolution, time of appearance, and in resemblance



PULAR SYPHILIDE

OMATA

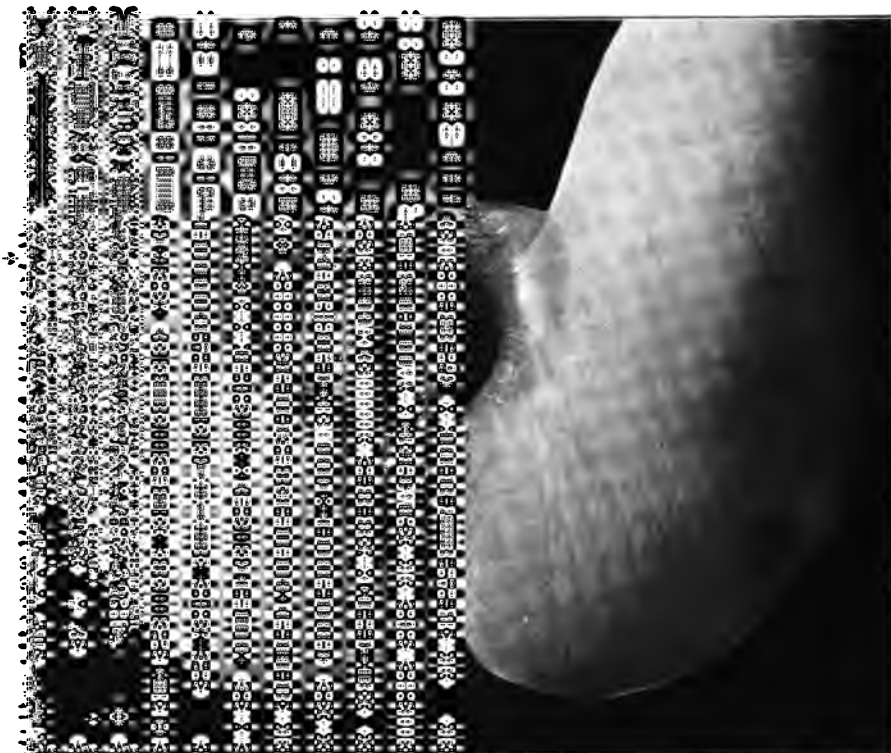
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APULAR SYPHILIDE

LOMATA

gillulitis of the vulva. The coalescence of a
-like patch shown in the illustration, occu-

to simple lesions. They vary in size from a pin-point to a dime, are round or oval and surrounded by a coppery zone; they may originate from papules or be primarily pustular and occasionally develop as a rapid transition from the vesicular. They may cover the entire body or be limited to certain regions; they may be superficial, leaving no trace behind, or ulcerate and produce scars. The crusts which form from the small pustules are greenish-brown in color, and beneath there is little or no suppuration; the crusts of the larger lesions are greenish-black and cover well-marked ulcers, secreting thick, dark yellow pus. They commonly appear as secondary manifestations of syphilis, but they may be prolonged into or recur in the tertiary period. The early occurrence of a pustular syphilide is indicative of a bad type of the disease or some condition of the patient favoring suppuration, and in proportion as the lesions are large, numerous and deep-seated is the tendency to precocious or malignant syphilis.

The so-called *vesicular syphilide* is included in this group, for the very good reason that all syphilitic vesiculation is transitory and always passes into the purulent type. Pustular syphilides may be divided into the varicellaform or variolaform, impetigoform, ecthymaform, rupial and pemphigoid.

The *varicellaform* or *variolaform syphilide* is an infrequent form, chiefly characterized by its resemblance to the eruptions of variola or varicella. It begins usually after some of the early eruptions of secondary syphilis, shows a preference for the forehead, face and flexor surfaces, and lasts from four to six weeks unless prolonged by successive crops. At first the lesions appear as red spots, which soon become elevated by a serous or sero-purulent effusion underneath the overlaying epidermis. With the serous and pustular transformations they assume a conical shape and are surrounded by a well-marked coppery areola. When mature they are pea sized or slightly larger, but soon shrink, become flattened, often umbilicated, and in a few days dry into greenish-brown, slightly adherent crusts underneath which is superficial ulceration.

Ultimately the crusts fall off, leaving reddish-brown depressions. When the lesions remain discrete they may have a close objective resemblance to the eruption of chicken-pox. In other cases the lesions at an early stage pass into shotty, umbilicated papules and papulo-pustules identical in location and appearance to the eruption of smallpox. In fact, many cases of this syphilide have been mistaken for variola and sent as "suspects" to smallpox hospitals. This variety rarely appears before the third month and may appear as late as the second year. The onset is usually slow, it runs an indolent course, generally without increase in size or coalescence of the lesions. In the neglected or debilitated this syphilide may cause deep ulcerations and consequent cachexia.

The DIAGNOSIS, notwithstanding the striking resemblance of this syphilide in many cases to a varicella or variola, is commonly made without difficulty. The absence of the prodromal symptoms and attendant fever of the latter and the slow development of the syphilide are distinctive points. Sometimes the onset of the syphilitic eruption is accompanied by marked febrile disturbance,

but the history of the case and a delay of a day or two, at most, would show the characteristic changes of the more acute exanthemata. Varicella is a disease of childhood and syphilis usually of adult life.

The *acneform syphilide* simulates acne vulgaris, in that it attacks the hair and sebaceous follicles and develops into like papulo-pustular lesions. This eruption generally appears from the third to the sixth month of the secondary period, and is often attended with considerable fever which may persist for days or weeks. The lesions are most numerous about the face, back of the shoulders and neck, on the scalp and outer aspect of the extremities, but may extend to other parts of the trunk and extremities; often the invasion occurs by successive stages from the regions of the head and shoulders to other parts of the surface. The lesions remain usually discrete as they become disseminated over different regions, *acne syphilitica disseminata*. Later outbreaks are more apt to be grouped in certain regions, and very rarely they become confluent or take on a verrucose appearance.

The lesions consist of small conical or rounded papules which soon become yellow at the apex, to which the pustulation is confined, while the base is first a bright red, soon deepening to a brownish hue. The onset of the eruption may be rapid or sub-acute, and the pustulation correspondingly immediate or only after the papules have existed for several days. Miliary papules and erythema may precede or coexist with the acneform lesions. The thin greenish-brown crust which forms at the apex is in many cases cast off, leaving a papule which continues to desiccate on the surface as involution takes place. Sometimes a collarette of exfoliation is seen about these as in the typical papular syphilide. A small pigmented spot remains for some time after the disappearance of the infiltration. Occasionally ulceration may occur, the pustule increases in size, involves the derma and results in the production of a scar. The *duration* of this syphilide is usually from six to ten weeks, but may be prolonged by successive crops for months. The eruption is always more copious at first than in the relapses, and, beyond the limits of its course, recurrences are apt to be in larger and deeper lesions.

DIAGNOSIS.—*Acne vulgaris* may be excluded by its usual appearance at or about puberty, its limitations to a certain region, absence of constitutional symptoms, presence of comedones and a variation in the size of the lesions, some of which may be little follicular abscesses whose contents can be pressed out. Whereas the acneform syphilide generally occurs in adults, is more or less generalized; its lesions more uniform in size; the invasion is attended with systemic fever, is not associated with comedones, the pustulation only occurs at the apex of the papules and other signs of syphilis are usually present.

Iodic and *bromic* acne might be mistaken for the syphilide, but the absence of constitutional and other signs of syphilitic infection and a history of the use of either of these drugs or their compounds would serve to distinguish the former.

The *impetigoform syphilide* is a rather common form of pustular eruption occurring during the middle or latter part of the first year of syphilis, and is

characterized by the objective resemblance of the lesions to those of simple impetigo. In exceptional cases the eruption may appear in the second or third year, and in a severe or distinctive form it may occur as a tertiary manifestation of syphilis. The earlier lesions are usually discretely distributed over the whole body, but often predominate on the face, scalp, genitals and extensor surfaces of the extremities. The later lesions are localized and grouped with a more marked predilection for regions named. The pustules originate from small or larger pea-sized infiltrations or flattish papules, usually situated in the perifollicular structures, the purulent exudation elevating the epidermis to form round or oval lesions. The pustular stage is short, but the resulting crusts are persistent, adherent, of a dark-brown color and surrounded by a narrow areola. If forcibly detached, a superficial ulcer is found beneath and the crust quickly re-forms. Undisturbed it may not fall off spontaneously until the local process is finished and healing occurs. Sometimes the crusts of several pustules may join together, especially on the face and scalp, forming a complete or incomplete crusted surface a half inch to two inches in diameter, which on the hairy parts is apt to be irregular in outline. The grouped pustules of the late period may unite and form large patches, usually remaining circular in form, but occasionally assuming a kidney shape. These transformations are rarely seen on the face, but more often on the forearm, thigh or on the trunk.

In neglected or debilitated subjects this pustulo-crustaceous syphilide may progress superficially by a ring of ulceration underneath the edges or around the central crust, and sometimes extend over a large surface, healing meanwhile in the centre, leaving perhaps little or no injury to the skin behind. In other cases the extension may take place at one or more parts of the periphery while repair goes on at other portions of the patch, constituting in either case a form of *superficial serpiginous syphilide*. These variously shaped and spreading lesions may become merged together and involve a large extent of surface. The spreading ulceration is apt to keep a circular form on the face, and an oval or more distinctly serpiginous form on the arms and trunk. This form of pustular syphilide may occasionally lead to deep ulceration of the skin, varying in extent. Underneath the crusts the destructive process may involve the entire thickness of the skin. Removal of the crust exposes a deep, excavated ulcer, with abrupt edges and a red, uneven floor covered with secretion, which soon dries into a new crust. It is sometimes called *impetigo rodens* when it occurs in the cachectic or strumous, and resembles similar lesions of the tertiary period. It is seldom seen in those who receive appropriate treatment.

The *course* and *duration* of this syphilide is nearly always chronic. The number of the lesions present at one time may be few, and new pustules may continue to appear for a long period as the old ones fade. Occasionally the rash is abundant and runs a shorter course. It may be associated with any of the other types of eruption of the secondary or even of the tertiary stage. A few pustular lesions are not infrequently seen near the termination of a papular syphilide.

A DIAGNOSIS of the impetigoform syphilide can usually be made without

difficulty. It may be distinguished from the eruptions of *smallpox* by the more acute and severe onset of the latter, and the more rapid evolution of its lesions. From *impetigo simplex*, by the more rapid invasion and course of the latter, by the disappearance of the areola when the crust forms in impetigo; its yellow crusts more dense and adherent than in the syphilide. Impetigo eruption is usually attended with some symptoms of heat and itching; these are absent in the syphilide, while other signs of syphilis can be generally found. From *pustular eczema* the confluent syphilide may be recognized by the absence of subjective sensations, its more abruptly defined patches and darker crusts commonly covering points of ulceration.

The *ecthymaform syphilide* is a type of pustular eruption which occurs in a superficial and deep form, the former often exhibiting a marked resemblance in form and location to non-specific ecthyma. It is usually a late secondary accident, but may appear at any time during this period, while the deep form is always a late manifestation or a feature of precocious syphilis.

The *superficial* form, as a rule, is found most abundantly on the legs, but may be freely distributed about the neck, buttocks, inguinal regions and, rarely, there may be lesions on the trunk. The pustules arise from red infiltrations in the skin; they are small and conical at first, but increase in size with the peripheral extension of the infiltration, and progressively dry into crusts of a yellowish color. These become brownish or even darker from admixture of dirt and sometimes of blood. As the crusts grow in size with the base of the pustule they become flat and sometimes depressed in the centre. Beneath the crust superficial ulceration goes on until the crust is thrown off, leaving a red and often slightly papillated surface, which may again become covered with a thin epidermic crust, or remain scaly for a time during the completion of the reparative process. The copper colored areola may be a long time in fading away. These superficial lesions rarely exceed a third of an inch in diameter, except under unfavorable conditions of the system, when they may increase singly or by union to the size of an inch or more. The *course* and *duration* of this syphilide is much the same as the spreading impetigo form. It may develop in a week, or continue to appear in crops for a month or more. Occurring as an early accident the lesions are apt to be numerous and symmetrical; as a late eruption they may appear without symmetry and be limited to one region. Their decline may or may not be succeeded by scars.

The *deep* variety of the ecthymaform syphilide is rarely seen in the secondary period, and is then usually indicative of precocious or malignant syphilis and attended with marked cachexia. More often it is a late lesion. It begins as a round or oval elevation or papulo-tubercle of the skin which soon breaks down into a yellowish pustule. This may become darker from admixture of a little blood and dries into a brownish-black crust, which may remain conical or flatten out as it increases in size. Beneath the crust may be found a deep ulcer with sharply cut edges, with a foul, brownish colored secretion covering a smooth, grayish floor. The base of the ulcer consists of firm, infiltrated tissue of a deep red color, with sometimes an extending line of ulceration at the periphery, not

completely covered by the crust and surrounded by a deep coppery hued areola. These lesions may attain a half inch or more in diameter and in neglected cases continue to spread, assume a serpiginous form or merge together, and are often accompanied by hectic fever, etc. The process of repair, even in benign cases, is usually slow; its termination is indicated by a lessening of the secretion, the appearance of healthy granulation and melting away of the border; crusts may cease to form or continue to the end of the process. A depressed coppery red cicatrix, representing in shape the area of previous ulceration, is left, which gradually pales into a glistening white spot. This syphilide generally develops slowly in crops of a few lesions, at intervals of seven to twenty days, and may pursue a sluggish, insidious course for months. The eruption is most common on the anterior and outer aspect of the legs, on similar regions of the arms, the lower parts of the trunk and on the face.

The DIAGNOSIS of the ecthymaform syphilide is seldom difficult. Non-specific *ecthyma* may be excluded by the absence of a bright red inflammatory areola and pruritic sensations, presence of more extensive ulceration, darker and thicker crusts, greater variation in the size of the lesions and other evidences of syphilis.

Ecthyma cachectica with a livid areola can be distinguished from the deep ecthymaform syphilide, in the absence of other signs of syphilis, by their superficial though perhaps more extensive character, more distinct inflammatory type and wider areola. *Varicose ulcers* may be mistaken for the deep ecthymatous syphilide, but attention to the history of development, presence of varicosis, pains, and an absence of other evidences of syphilis will help to exclude the syphilide. The unhealthy sore sometimes found in chronic *phtheiriasis* may be distinguished by the presence of blood crusts due to the bites of the insects, as well as by the discovery of the latter in the seams of the underclothing.

The *rupial syphilide*, as a characteristic eruption, occasionally appears precociously in the secondary period and is preceded by febrile symptoms, but it is usually a tertiary manifestation of constitutional syphilis. It begins, like the ecthymatous form, as a red infiltrated spot, which is soon transformed into a flat pustule. The thickness of the pus causes it to dry rapidly into a greenish-brown crust. As the ulcer underneath the crust spreads beyond its edges another layer of desiccated secretion is formed wider than the first and elevating the latter. Thus the process of ulceration and incrustation may very slowly progress until a large, round, conical, firm, laminated, adherent crust is formed, a third of an inch to one or two inches in width. At the acme of its formation the rupial crust is of a greenish-brown or black color, and from its peculiar structure resembles the outer surface of a dirty oyster shell. Rarely these lesions reach extreme dimensions of several inches in diameter. Underneath a crust forcibly removed is found a rather superficial ulcer with a grayish-red base and moderately undermined edges, secreting an unhealthy, thick, serous pus, intermixed with blood; around each ulcer is a coppery areola which merges outwardly into the sound skin. Rupial lesions may be generally distributed, but they are more commonly seen on the arms, face and neck, and are more likely to attain a large size when few in number.

The *course* of a rupial syphilide is very slow. It frequently appears in crops of a few lesions at short intervals, and may continue for months to a whole year unless cut short by treatment. When a lesion exceeds an inch in diameter its later growth is extremely slow. When repair is advanced the crust falls off, leaving a healthy granulated base which becomes converted into a depressed, smooth or netlike, white, shining scar, which remains surrounded for some time by the remaining coppery areola. These cicatrices are often perforated by minute holes, the openings of sebaceous glands. Rupial lesions are pathognomonic of syphilis, and no doubt in *DIAGNOSIS* is likely to arise if care is exercised in the examination.

The *pemphigoid syphilide* (the bullous syphilide) is a variety which, owing to its rarity and ephemeral character, holds an uncertain place in the classification of the syphilodermata. The serous effusion almost invariably, if not always, becomes purulent, and sometimes is transformed into the ecthymatous or rupial syphilide; therefore, it may with good reason be grouped with the pustular class.

It begins very much like true pemphigus by an effusion of serum beneath the epidermis, which slowly increases to the size of a pea and upwards, rarely attaining the size of a walnut. The contents meanwhile become turbid, and are transformed finally into a thick pus. The lesion is surrounded by a deep red areola, and the pus dries into an adherent greenish-black crust. In the debilitated or cachectic the ulceration underneath may increase and a rupial form of lesion result. Ordinarily the superficial ulcer cicatrices underneath the crust, which falls off, leaving an atrophic, deeply stained spot. In some mild cases there may be no objective differences between these bullous lesions and those of true pemphigus, which have led some observers to hold the view that these lesions are due to intercurrent pemphigus in the course of syphilis. The eruption is often confined to the palms and soles, forearms, legs or chest; rarely it may be widely spread. It is nearly always a late accident of syphilis and usually indicates a severe form of the disease; it may be a feature of relapses, and in those suffering from internal syphilis.

A *DIAGNOSIS* of this syphilide may be made on the history of the case, presence of the concomitant symptoms of syphilis and in doubtful cases on the effects of specific treatment.

IV. **The tubercular syphilides.**—Two forms of the tubercular syphilide are recognized, the tubercle and the gumma. Alike histologically, they differ only in depth and extent. The tubercle is a deep intradermal infiltration too large to be classed as a papule. The infiltration which constitutes the gumma involves the subcutaneous tissue. Both lesions are typical of the tertiary or late stage of syphilis, and usually appear in the first few years after the secondary period, but may occur much later, perhaps after freedom from all cutaneous manifestations or even without any history or previous disease ("ignored syphilis"). One of my own cases had a gumma of the nose twenty-two years after the primary sore, and I have seen several cases in the clinic with tertiary lesions from whom no history of primary or secondary syphilis

could be obtained. The so-called *tertiary* stage of syphilis may be termed the unnecessary, uncertain and chronic period of the disease, and is probably due in most cases either to so mild primary and secondary symptoms as to be overlooked or neglected, to some depraved state of the system or to want of sufficient treatment. The lesions common to late syphilis may occur precociously in the first two years of the disease, even in the second or third month when the macular or papular eruption is still present. They are then always a sign of a severe or anomalous form of the disease and may pursue a more rapid course.

The tubercle or gumma occurring in the tertiary period differs from the eruptions of the secondary stage in the absence of general or local prodromata, in the lack of any definite order or time of appearance, in the smaller number and want of symmetry of lesions; in their deeper development, uncertain seat and isolation; in their insidious growth by slow and dense cell infiltration, usually without tendency to resolution, but a final proneness to degeneration and destruction of the parts involved; and in their not infrequent association with syphilis of the viscera or other parts. These and other varying peculiarities of the tertiary accidents are never exhibited alike in two cases, hence any didactic description of their clinical history must be incomplete. As a rule late tertiary lesions do not possess infective properties, but just when the syphilides cease to be infective is uncertain and probably variable. While they may occur upon any portion of the body and mucous tracts, they are more common on the face, back of the shoulders and on the extremities.

The *tubercular syphilide* anatomically occupies an intermediate position between the large papule and the gumma. Unlike the papule, it involves the whole thickness of the skin, but does not penetrate into the subcutaneous tissue like the gumma.

The lesions commence as deep red spots which gradually enlarge in all dimensions until they reach the size of a split pea or from relatively large lateral growth to a half-inch or more in diameter. The smaller lesions are more rounded and elevated and the large ones more flat and less raised. In color they vary from a pinkish-red to a dark red, with a shining surface on some parts where the skin is thin, and on thicker portions they may have a dull rough or even scaly surface. When the scaliness of the flat tubercles is considerable they may resemble psoriasis. They are apt to appear first on the scapular region of the neck, on the forehead, about the alæ of the nose, ears and may be discretely scattered or distributed in irregular triangles or circular shapes; situated along the brow near the scalp they constitute a variety of *corona veneris*. They may invade the trunk and extremities and are then more abundant on the back, gluteal regions and on the outer aspects of the legs and arms near the joints. The nearer their occurrence to the secondary period the more copious and general is the eruption likely to be. As a late manifestation the outbreak may be confined to one region and the lesions few in number. From the third to the sixth year is their most common period of occurrence, but they may appear early, even in the first and second years, or late as the tenth or twelfth year and rarely later yet.

The eruption is not attended with any subjective symptoms and its *course* is usually very slow. The development of new tubercles and the indolent involution of the old ones may carry the duration into months or years. The behavior of the lesions varies widely in different cases according to their mode of evolution and involution. They seldom ulcerate, they may run together and form variously sized and shaped patches with elevated borders, depressed and clearing centres, constituting a variety of the *annular syphilide*. When the process of extension and resolution is rapid little damage may be inflicted on the skin; if slow, more or less atrophic scarring is left. Sometimes after several tubercles unite the extension may occur serpiginously. Thus from a coalescence of lesions on the nose butterfly-like extensions may occur out on to the cheeks. In the large number of cases the eruption has a circumscribed circular or crescentic outline which extends by new papules appearing at the periphery. Occasionally a large part of the face may be invaded by the syphilitic process. On the non-hairy part the patches are comparatively smooth, on the hairy surfaces they may be uneven from the greater involvement of the follicles and papillæ. If the latter become excessively hypertrophied there may appear the same papillomatous or vegetating type of syphilide already mentioned as originating from the papular lesions. A little pus may form and dry into crusts between the elevations or an exudation of serum dry into crusts over the surface. Rarely the hypertrophy of the integument of the face may become enormous and simulate leprosy. In other rare cases some tubercles may undergo colloid degeneration and appear as if saturated with glue. The *course* of the vegetating tubercular syphilide is very protracted.

On the *palms* and *soles* the tubercles become scaly and constitute one form of syphilitic psoriasis. They may form circles with a fringed border and a coppery areola.

The involution of the non-ulcerative tubercle occurs through a simultaneous degeneration and absorption of the syphilitic infiltration and the fibrous structure of the derma which holds it. This process and the replacing cicatricial formation goes on underneath an unbroken and perhaps slightly changed epidermis. In this retrograde process the rounded tubercles flatten and sink in the centre, and may thus be transformed into tubercular rings which are finally effaced. Beginning with the involution, the color of a lesion fades from a red to a brown, and as it disappears leaves a grayish pigmented spot, which is finally replaced by a whitish cicatricial depression. The shape and extent of the ultimate cicatrices will depend upon the preceding lesions, the appearance of new tubercles while the earlier ones are being resorbed, and also on early and effective treatment. When treated early it is possible for this syphilide to disappear without injury to the skin. Nearly always some scarring results and in neglected cases there may be considerable loss of tissue without a sign of ulceration. Thus the lobes of the ear and the alæ of the nose have been destroyed by the atrophic process.

In a minor number of cases some part of the tubercle may ulcerate and is

then sometimes termed the *ulcerative tubercular syphilide*. It differs from the non-ulcerative only in the method of involution. In place of the absorption process of the latter the tubercle softens in the centre, breaks down the epidermis over it and becomes covered over with a quite thick yellowish crust. This crust slowly turns to a greenish-black and is surrounded by a deep red or purplish areola. The size of the crust represents the area of the ulcer which it covers. When the crust is removed this is usually found to be deep with a thick border, sharply cut and sometimes slightly undermined edges, a smooth floor and secreting and irritating foul pus. The subsequent course of these ulcers varies with their location, the general and tissue health of the patient and the intensity of the inflammatory process. In the cachectic, debilitated and alcoholic, the ulcers are apt to spread and join together in large patches. In the well nourished they may remain circumscribed and ultimately leave no greater cicatricial blemish than in the resolute tubercles. The more common localization of this syphilide is upon the face, shoulders and neck and less often on the extremities and trunk.

On the *face* it may be attended with considerable inflammatory swelling and hypertrophy, and sometimes pursues a rapidly destructive course. This is especially marked when the process becomes phagedenic or gangrenous in character. In extreme cases the nose may be penetrated and its entire structure, with the soft parts about, destroyed in a few weeks. These ulcerations may advance by peripheral infiltration and consecutive breaking down, or by new individual tubercles forming near their border; in either way the tendency is to maintain circinate shapes. Wherever situated, however, they often assume a serpiginous method of growth by new tubercles developing at the margin, while progressive cicatrization goes on in the centre. The latter mode of combined evolution and involution, as well as the exceptional appearance of keloidal tubercles in the cicatrices of syphilis may present a close objective analogy to lupus vulgaris. Hence the origin of the term *syphilitic lupus*.

The lesions of the ulcerative tubercular syphilide heal very slowly, as a rule. When repair is sufficiently advanced crusts cease to form and an irregular, reddish cicatrix is left, which finally fades to a shining white color often surrounded by a narrow coppery areola for some time. Such scars are usually depressed relatively to the depth of the preceding ulceration, and in some cases following deep ulceration they are traversed by fibrous bands. Sometimes keloidal growths appear in the cicatrix, and the superficial scars may be perforated by the minute openings marking the seat of follicles.

When this eruption occurs early, as in precocious syphilis, it may coexist with other cutaneous and non-cutaneous manifestations of the secondary period. Statistics indicate that the exulcerative tubercle constitutes about one-quarter of the tertiary syphilides. Its course and duration may be greatly modified by treatment. Neglected cases may result in extensive destruction of tissue with consequent cicatricial disfigurement, and are often accompanied with marked cachexia and sometimes with visceral symptoms.

DIAGNOSIS.—The tubercular syphilide may be mistaken for the lesions of

lupus vulgaris, leprosy, psoriasis, eczema of the palms and the tubercles of *acne rosacea*.

Lupus vulgaris lesions may be closely simulated by this syphilide, but lupus commonly begins in early life, is often limited to one region and is never as widely distributed as the syphilide. Lupus is much slower in its development and progress, has less regular lesions surrounded by an inflammatory redness which merges gradually into the sound skin, unlike the well-defined coppery areola of syphilitic tubercles. The color of the lupus tubercles is pinkish or violet, of apple jelly consistency, and milia-like colloid points may be found sometimes about or on the lesions. The ulcers of lupus are not so sharply cut or regular as in the syphilide; the crusts are irregular and do not have the greenish-black color of the latter. Repair is much slower in lupus, and the scars when formed are hard, uneven, more adherent and less depressed than the smooth, thin, flexible and sunken scars of syphilis. For other differences see lupus of the face.

Leprosy tubercles may resemble those of syphilis, especially when the latter are hypertrophic and similarly located about the face. The leprosy growths are larger, softer and usually accompanied by large patches of brownish pigmentation, white anæsthetic spots and other disturbances of sensation in or about the lesions not found in syphilis. Besides these differential points, residence in a leprosy country, duration, etc., will help to clear up the diagnosis.

Psoriasis may be differentiated from the tubercular syphilide of the palms or soles in the same way as the papulo-squamous form.

Chronic palmar eczema and this syphilide may look much alike. Eczema is nearly always characterized by a history of or the presence of serous exudation, greater crusting, fissuring and an ill-defined border accompanied with pruritus. The syphilis lesions are abruptly defined, often infiltrated and fringed at the border, surrounded by a coppery areola and unattended with subjective sensations unless irritated. Either disease may show more characteristic lesions elsewhere on the body.

The tubercles of *rosacea* will seldom be mistaken for those of syphilis. The nodules of the *rosacea* arise in congested and thickened skin, frequently after a history of long persisting redness, followed by dilated capillaries which become tortuous and permanent. The tubercles are uneven, have no tendency to destroy tissue by degeneration or ulceration and are generally limited to the nose, middle third of the face and forehead. The presence of a few of these features, especially in connection with a long course, would serve to exclude uncomplicated syphilis.

The *gummatous syphilide* always begins in the subcutaneous tissue, unlike the tubercle which begins in the derma, but, like the latter, is made up of a solid cell infiltration. It is always circumscribed by a hardening of the connective tissue about it, but varies greatly in size—from a pea to an egg, or even larger. In shape it may be globular when situated in the loose tissue, flattened when formed beneath the scalp and oblong where there is lateral restriction, as along the fingers. When a syphilitic gumma is of large extent it is usually

due to a union of several lesions; generally they remain isolated and rarely a single tumor may be of large dimensions. Gumma are more apt to form in regions where the connective tissue is abundant, and where there is considerable deposit of fat it may remain a long time without extending to the skin. When the part affected is firmer and especially over bone and fascia the skin may be involved early and the parts beneath attacked and ultimately destroyed.

Involution of the gummatous tumor may occasionally take place without ulceration and leave little or no trace behind, but when the skin is secondarily attacked ulceration occurs as a rule and the tumor is transformed into a *gummatous ulcer*.

This syphilide is nearly always a late lesion, rarely occurring before the fourth year and sometimes not until after the twentieth or thirtieth year. Exceptionally it may appear in the earlier months in malignant types of the disease.

Most gumma have three fairly distinct stages—of infiltration, of ulceration, and of repair.

In the stage of *infiltration* there is a slow growth of one or more tumors. The number is usually in inverse ratio to the lateness of occurrence. Even in the early years they are rarely numerous, not often exceed eight or ten, though cases have been recorded where there were thirty and upwards. Exceptionally, also, they may develop symmetrically and quite rapidly with accompanying general symptoms of the secondary period. In the later period they are asymmetrical and unattended by general or local disturbance beyond a moderate soreness in restricted or exposed situations. When fully developed they appear as subcutaneous, firm, rounded nodules, at first freely movable between the parts beneath; thus they may remain for weeks or months. In their further progress they tend to invade the skin rather than the deeper tissues. This advancement is shown by the skin losing its suppleness, becoming thicker, reddened and attached to the tumor. Soon a hyperæmic areola appears around the coppery-red and perhaps elevated centre. Again, the lesions may remain stationary for a time and under treatment disappear without ulceration. In a recent case under the author's care a gummatous tumor of the upper lip, the size of an almond nut, which had gone slightly beyond the point described above (the most elevated portion of the skin having flattened from the softening beneath), entirely disappeared under treatment without a break in the surface of the skin.

Generally the stage of *ulceration* succeeds the formative one; the softened and undermined skin breaks in the centre and gives exit to a thick, viscid product of disintegration mixed with blood. Gradually the slough-like substance of the neoplasm is eliminated through one or several openings, leaving exposed a gummatous ulcer. The *gummatous ulcer* is more or less deep and wide according to the extent of the original tumor; it is round, oval, or irregular (from the fusion of several small lesions), with thickened borders surrounded by an extensive areola, undermined walls, an uneven greenish-red or blackish floor covered with broken down tissue and bathed by a sanious, fetid, purulent secretion from the walls of the cavity.

The course of such ulcers varies with their location, the care they receive and the intercurrent of inflammatory, gangrenous or other processes. Sometimes they pursue a phagedenic course, involving extensive areas and producing a severe or alarming cachexia. In a few cases they may remain indolent, with considerable swelling of the adjacent tissues, an offensive discharge and without any tendency to heal. In any case *repair* cannot occur until complete removal of the abnormal tissue, spontaneously or by treatment. Then healthy granulations appear on the floor of the ulcer, the thickened borders melt away and scar tissue forms over the surface. The consequent cicatrix is depressed and wide according to the depth and extent of the ulcer; it is usually smooth, but may be uneven from fibrous bands or nodules, is often adherent, white in the centre and a brownish hue at the periphery. The favorite seats of gumma are the middle and upper third of the legs, about the ankles, the scalp and forehead. They may, however, occur upon any part of the body, but only with extreme rarity on the palms or soles. On the leg they are apt to be attended with œdematous, hypertrophic and inflammatory complications, sometimes destroying the deep tissues to the bone. On the scalp they are prone to coalesce, involve the entire integument, become adherent to or damage the bone. Here, too, erysipelas is liable to supervene as a complicating process, as it sometimes does in gummatous ulcerations of the leg and face. Located on the face gummatous ulcers may not only destroy the soft parts, cartilages and bones, but even in the less severe cases may result in disfiguring scars which in some cases interfere with the functions of the eyes, nose or mouth. Such results are rare, however, in recent times, since few cases among the poor fail now to receive careful treatment.

Where the connective tissue is abundant, as about the genitals and buttocks, gumma may extend to considerable depth or breadth. In the deep form ending in ulcerative degeneration, blood-vessels may be eroded and severe or fatal hemorrhage result. In rather unusual situations, as upon the back, in the breasts, etc., large gummatous tumors have been mistaken for other growths and sometimes unnecessarily excised. Cases have been recorded where gumma were situated on sensory nerves and caused pain, sometimes of a severe neuralgic character. Like all syphilides, the course of the gummatous is influenced by diathetic and other general or local tissue states. Syphilitic ulcerations in the scrofulous are likely to be indolent and intractable to treatment. Some local conditions may cause the ulcerating gumma to extend in a regular or irregular manner over a large surface, or in other cases take on a papillary growth. Likewise, gangrene or phagedena, as before mentioned, may contribute to the destruction of tissue, be attended with local pain and constitutional depression amounting sometimes to a typhoid condition.

DIAGNOSIS.—It is important to recognize gummatous tumors at the earliest moment in order to institute appropriate treatment to prevent ulceration and destruction of tissue, and to distinguish them from other neoplasms which may require surgical removal. A clear history of primary syphilis or the occurrence of other syphilides is often wanting as an aid to diagnosis, and chief reliance

must be placed on the physical features and method of development of the gummatous tumors or ulcers.

In the stages of tumefaction gumma may be mistaken for scrofulous swellings, sarcoma, lipoma, fibroma, etc.

Enlarged *glands* and "*scrofulous gummata*" often have a clinical likeness to specific gumma. They more often occur in young subjects than syphilis, are generally situated quite characteristically along the line of lymphatics and pursue an indolent, persistent course. No history of syphilis can be obtained, and other signs of scrofula are usually present.

Sarcomata do not have the favorite seats of gumma; they more frequently occur on the trunk and become attached to parts beneath, while gumma seeks the skin; they are harder, painful, usually single and do not disappear by absorption.

Lipoma is softer, more compressible and flatter than a gumma. It is commonly single, located in regions unusual for the syphilide, and may remain little changed or slowly enlarging for years.

Fibromata usually develop in childhood, persist through life without any tendency to ulceration.

All growths suspected of being syphilitic should receive specific treatment before resorting to radical operative measures.

Gummatous *ulcers* are to be distinguished from epithelioma, varicose ulcers, chancroid and lupus vulgaris.

Epithelioma as compared with the gumma is of much slower development before ulceration, frequently remaining unchanged for a long time. It is only after ulceration occurs that it may be confounded with the syphilide. It may then be distinguished from the latter by its more common occurrence at an advanced age as a single lesion and of a painful character. The epitheliomatous ulcer has a hard, everted and non-pigmented border, an uneven granular and warty base, a scanty offensive secretion which does not form into crusts.

Varicose ulcers are more often located on the lower third of the leg; more or less varicosis, oedema and eczematous inflammation are common features, while syphilitic ulcers occur usually on the middle or upper third of the leg, are often surrounded by the sound skin and lack the concomitants of varicose ulceration.

A *chancroidal ulcer* may almost exactly resemble an ulcerating gumma. The history of slow infiltration and tumor before the ulceration, the absence of a history of an acute inflammatory course and glandular involvement would clearly distinguish the syphilide.

The ulcers of *lupus* have been so closely simulated by syphilitic ulceration as to lead to the use of the unwise term, *syphilitic lupus*. Lupus vulgaris begins, as a rule, in early life and, on the face, often remains stationary for months or years. It is characterized by the formation of small, soft tubercles, which slowly break down, and the disease extends by the development of new tubercles, which in time ulcerate. No history or evidences of a precedent syphilis are obtainable in such cases.

In doubtful and suspected cases of cutaneous ulceration as in the same class

of tumors a short course of anti-syphilitic treatment may be employed to help establish the diagnosis.

The serpiginous syphilide.—Syphilitic ulceration is sometimes characterized by an exaggeration of its natural tendency to spread at the periphery, as healing progressively takes place in the centre. Hence the name, "serpiginous syphilide," which may occur in two forms, the superficial and deep. The *superficial serpiginous syphilide* was briefly described under the impetigoform syphilide. It originates from a pustule and is usually a lesion of the early period of the disease, but prone to assume a chronic protracted course.

The *deep serpiginous syphilide* is usually a tertiary lesion and may succeed a tubercle, a large pustule or an ulcerating gumma. It is a rare syphilide, chronic in its course, sometimes extending over a large area and lasting for years. It is most commonly found on the inner surfaces of the upper extremities, upon the legs and breast and, though involving the whole skin, rarely gives rise to much pain or soreness.

Starting from one or more lesions the central portion first undergoes softening, ulceration, crusting and repair. The infiltration adjacent to the centre in turn ulcerates and becomes covered by the characteristic greenish-black crusts. New lesions progressively appear at the periphery as if to feed the advancing ulceration, so that, in typical cases, the outer rim of a patch consists of a wall of infiltration and just within a furrow of ulceration, enclosing completely or partially a more or less cicatrized centre. In exceptional cases the process may assume a malignant course, rapidly destroy the skin, subcutaneous and even the deeper tissues.

DIAGNOSIS.—A serpiginous mode of extension is not pathognomonic of syphilis, but when due to the latter, could scarcely be mistaken for any other diseases except lupus and chancroid.

Serpiginous lupus begins usually in early life; it is more localized and limited, generally confined to the face and extremities, and the lupus nodules are smaller, softer and more superficial than those of syphilis; its ulcerations are less sharply cut and often intermingled with cicatrices. The lupus crusts are of a lighter color, thinner and more adherent than those of serpiginous syphilis, and its scars more uneven and often traversed by bands of connective tissue.

Serpiginous chancroid may be nearly always recognized by its history, locality, absence of preceding infiltration, its undermined edges, erratic course and less abundant secretion, which does not dry into crusts.

The vegetating syphilide.—Sometimes the advanced lesions of syphilis, such as the moist papule, ulcerating pustule, tubercle and gumma, take on a papillomatous or warty aspect due to a more or less pronounced overgrowth of the papillæ. This transformation of the surface of cutaneous sores is not peculiar to syphilis, and may occur in scrofula, lupus, yaws, pemphigus, sycosis, etc. The process is essentially the same in all and arises from some unknown local influence which stimulates papillary hyperplasia. The favorite seats of the vegetating syphilide are the warm, moist and hairy regions of the body,

especially the genital, axillary, anal, the scalp and bearded portions of the face, and the nasal and labial folds. These growths vary in size, shape and elevation, according to the basal lesion and the varying height and volume of the vegetations. The secretions from these excrescences dry into thin, yellow crusts. They finally disappear by ulceration, or by gangrenous death and separation at the base.

DIAGNOSIS.—When a clear history of syphilis and the development of the basal lesion is obtainable the diagnosis is quite clear; in obscure cases it may be difficult, particularly from such rare affections as lupus verrucosus, pemphigus vegetans and yaws.

Lupus verrucosus usually develops from an irregularly ulcerated surface having a history of origin in early life and limited to the face and extremities. The base and border of the lesion is soft and the color of the vegetations livid, as compared with the flesh tint of the body of the syphilide and its indurated brownish colored border.

Pemphigus vegetans always originates from bullæ and extends by the formation of new bullæ at the periphery, and by the fusion of neighboring patches advances sometimes over a large surface. These diagnostic features, the early and profound cachexia and the tendency to a fatal termination would soon distinguish it from the syphilide.

Yaws or *frambæsia* is a tropical disease and much rarer than cutaneous syphilis, but its local evolution up to the fungating stage may be very like nodular syphilis. It can be distinguished from the vegetating syphilide by its limitation to tropical regions, its more common occurrence in children, its peculiar raspberry-like vegetations, creamy acid secretion and the absence of all contributing signs of syphilis.

V. The pigmentary syphilides.—The confusion existing regarding this form has arisen from the inclusion of secondary pigmentary changes under this head. The syphilides in common with some other dermatoses may result in temporary or more permanent increase or decrease in normal pigmentation. Such changes are a part of the clinical history of these affections. The true pigmentary syphilide, on the other hand, is primary in occurrence and independent of other eruptions. It may be due to extravasation of blood coloring matter (pigmentary syphilide), or to hemorrhages into the skin (purpuric syphilide). Both are very rare.

The *pigmentary syphilide* may occur at any time in the secondary period of syphilis, most often in the latter half of the first year, but may appear as early as the second month or as late as the third year. It may be the only form of eruption present or coexist with other lesions. Males are seldom found with this syphilide and it is most frequently seen in blonde women in early adult life.

The seat of the eruption is usually limited to the sides of the neck, but sometimes appears on the forehead, face and trunk, and exceptionally it may have a wide or general distribution. According to R. W. Taylor there are three distinctive objective forms of this syphilide: (1) In spots or patches of various sizes. (2) As diffused pigmentation, which after a variable time becomes the

seat of leucodermatous changes, taking the form of small spots, which gradually increase in size, *retiform pigmentary syphilide*. (3) As an abnormal and unequal distribution of pigment, probably without excess in quantity, resulting in the interblending of lighter and darker colored spots, known as the *marmoraceous pigmentary syphilide*, from its resemblance to a form of marble. This condition is not common and may be overlooked by reason of its subdued tints. The second of these forms is the most common and the last the least common.

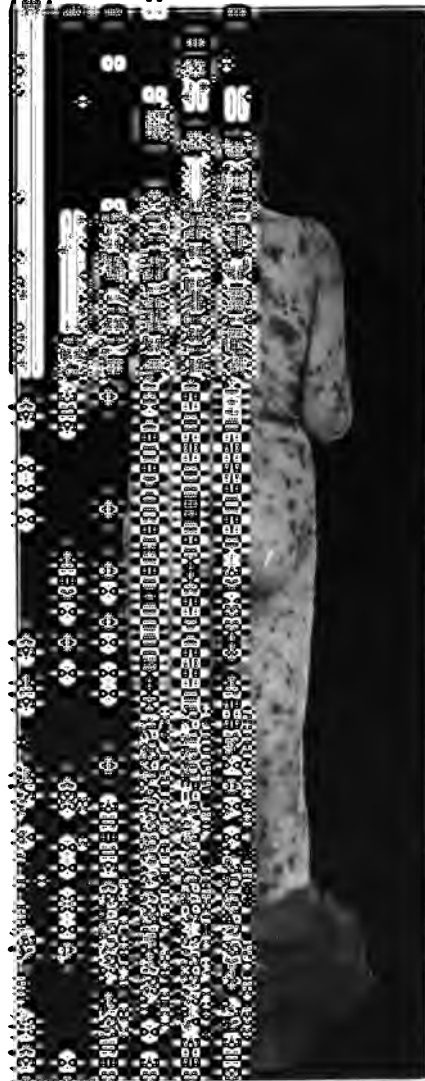
The *duration* of the pigmentary syphilide averages from three to six months, but may exceptionally persist into years. The patches are sometimes slightly hyperæmic, but this is a very transient state and the surface is not elevated or scaly. When they begin to fade lighter spots appear, which in contrast look whiter than the normal hue of the skin and have led to the mistaken term of *syphilitic leucoderma*. The appearance of atrophy of pigment in these cases is entirely an optical illusion, effected by the return of the skin in spots to its normal color, bounded by deeper coloration, which gradually recedes regularly or irregularly before advancing involution. Some writers observing these involutionary variations of the pigmentary syphilide have been disposed to call them special forms of syphilitic achromia, not warranted by a knowledge of the whole history of the pigmentation. A peculiarity of pigmentary syphilide is that it is uninfluenced by so-called specific treatment or external applications.

DIAGNOSIS.—In the formative stage the pigmentary syphilide may be confused with chloasma or tinea versicolor. *Chloasma* is most often situated on the face, where the syphilide seldom occurs, its favorite seat being the sides of the neck. Other evidences of syphilis may be present or subsequently appear. *Tinea versicolor* can be distinguished from the syphilitic stain by its different location, in large patches on the trunk, though it may extend to the neck; by the ease with which the color can be scraped or rubbed off with the epidermic scales, and by the presence of its fungus element on microscopic examination of the scales.

In the stage of decline, when lighter spots begin to appear, the syphilide may be mistaken for *leucoderma*. Location elsewhere than on the neck, and a narrow border of deeper pigmentation around the white spots, which characterizes the latter and is never found in the syphilide, will serve to distinguish one from the other.

From the hypertrophy and atrophy of pigmentation of the other syphilides, the true pigmentary form may be always known by the history of its independent development.

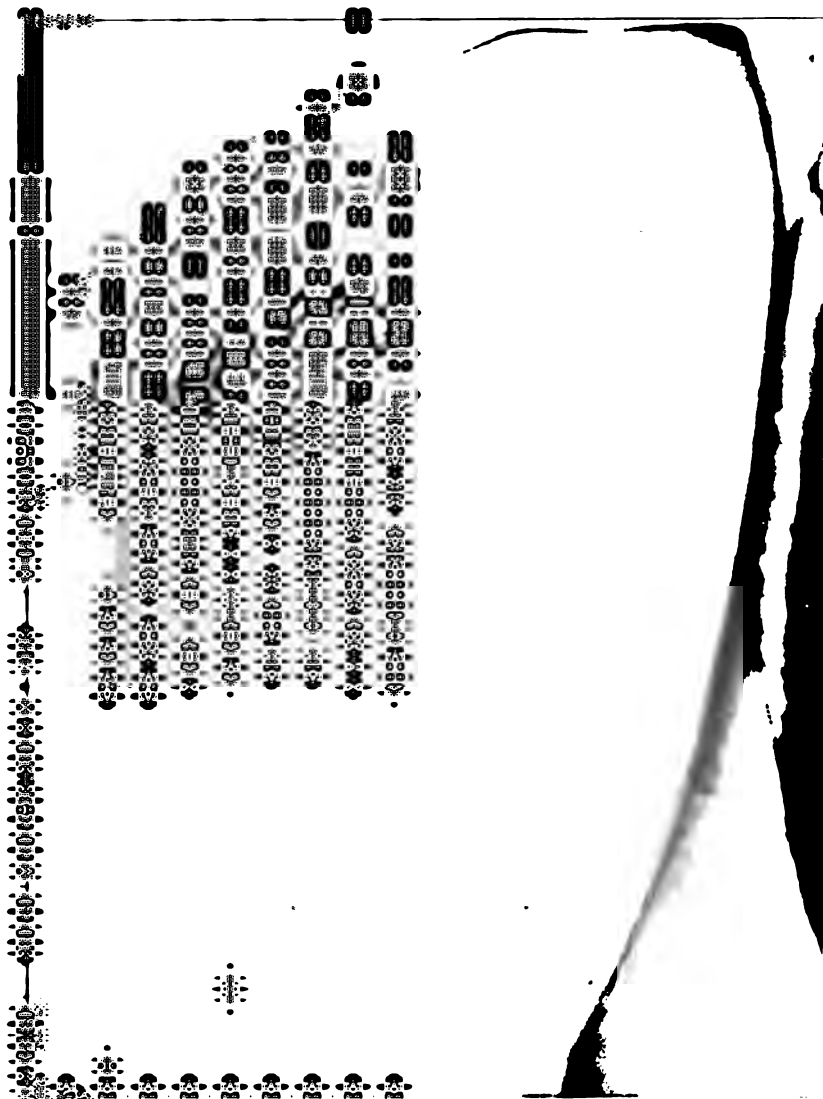
The *purpuric syphilide* occupies a doubtful place in the classification of syphilitic eruptions, because hemorrhage into the skin in syphilis independently of other lesions is exceedingly rare in the acquired form. Hemorrhage may occur with any of the early or late eruptions, but is more commonly associated with the macular or papular syphilide. The etiology of such effusions of blood relates probably more to the pathology of purpura than syphilis. With the macular syphilide, purpuric spots, from a pin's point to a millet seed, may



TOXIC SYPHILIDE

PAPULAR VARIETY

of age. At the acme of the secondary stage appeared in several crops at the same time. The lesions were characterized, of a dark purplish color, the stains were influenced by anti-syphilitic treatment.



SECONDARY SYPHILIDE

OF THE THIGH AND BUTTOCK

who denies ever having had any signs of previous cutaneous disease. Nearly four of right thigh; weeks later it softened and the lesions formed successively, some uniting in a slow course for two years. When about the thigh became infiltrated; two roundish ulcers formed. The inner and upper borders have since separated from the older part. The cut shows granulation under treatment.

appear more or less generally distributed with the roseola, each lesion surrounded by the flush of the latter. When hemorrhage complicates the papular form it may surround the papule or occur in its substance.

The same factors which produce non-specific purpura together with the altered blood of the syphilitic probably explain its occasional occurrence in the latter. It is a more frequent complication in children who are the victims of hereditary syphilis.

The presence of a syphilitic eruption in these cases will serve to distinguish them from all other purpuric lesions.

Syphilitic Alopecia

Loss of hair from syphilis may be more or less general in the secondary period, due probably to the changed condition of the blood and consequent deficient nutrition of the hair. This early loss of hair may occur in the third month or later, and usually consists of a general though irregular thinning of the hair on the head; thinning or knotching of the eyebrows, eyelashes, mustache and beard may occur, and sometimes the hair falls from the pubic and axillary regions. The loss of hair may be very moderate or considerable, and in aggravated cases may be nearly or quite complete over the whole body. Occasionally the hair falls out in patches resembling alopecia areata, or at the site of lesions involving the follicles. Early alopecia from syphilis may be aggravated by a coexisting seborrhœa and tend to be more persistent. Usually the loss of hair is temporary and is restored spontaneously or by specific treatment within six months. In the tertiary period localized permanent baldness may result from destructive lesions, whether they end in absorption or ulceration. The remaining hair in cases of advanced syphilis is apt to be dry and harsh.

DIAGNOSIS.—The irregular and incomplete nature of the alopecia is diagnostic of the early syphilitic variety. The knotted eyebrow is always suggestive of syphilis, and is said to be more common in women. The more distinct patchy variety may be distinguished from the round or oval patches of *alopecia areata* by their irregular shape, tendency to be symmetrical and the presence of other signs of syphilis.

The localized and permanent forms of alopecia due to the destructive lesions of late syphilis may be differentiated from circumscribed baldness due to *lupus*, *favus*, *chronic eczema*, etc., by the clinical history and the quality of the cicatrices.

Syphilitic Nail Affections

The nails may be attacked by the syphilitic process in two ways; one beginning in the nails constitutes a form of *onychia* and is chronic in course; the other beginning in the neighboring parts extends to the nails, *perionychia*, and may be acute or chronic in course.

These inflammations of the nails may differ little from those caused by chronic psoriasis or eczema, and may lead to similar atrophic or hypertrophic changes, for a description of which the reader is referred to the section on diseases of the nails. They occur generally within the secondary limits of syphilis, but may appear later. One nail only may be attacked or several at the same time, or more often successively. Onychia more commonly affects the nails of the hands and runs a mild course. Perionychia attacks the fingers and toes about equally, but those exposed to injury from use or accident are the most liable. It may be acute in process and chronic in course, and in the ulcerative form may destroy more or less completely the matrix and other parts of the nails. When the ulceration is confined to the sides or the free part of the nail a regrowth of a perfect nail may be expected, and even prolonged ulceration of the base may not prevent the regeneration of a fairly good nail. Considerable pain and annoyance may attend ulcerative perionychia, and the outcome is always uncertain; non-ulcerative forms may give little trouble and are easily cured.

DIAGNOSIS.—A mild syphilitic affection of the nails can sometimes be distinguished from the non-syphilitic only by a history or signs of syphilis, and which can be obtained nearly always in sufficient degree to exclude *eczema* and *psoriasis*. Ulcerative perionychia of the finger nail may be mistaken for a *chancre*. The absence of secondary manifestation of syphilis at the beginning of the nail lesion and the presence of enlarged axillary or epitrochlear glands would favor the latter. *Simple perionychia* occurring in the cachectic may be confused with the syphilitic form. In the absence of all other signs of syphilis the latter may be excluded after a reasonable delay.

Syphilitic Lesions of the Mucous Surfaces

Secondary manifestations of syphilis often occur on the mucous membranes coincidently with essentially the same lesions on the skin. Difference in structure and surface conditions produce a different appearance however on the mucous surfaces, least shown in comparison with the so-called mucous patches and condylomata lata of the warm and moist regions of the skin. The mucous lesions are chiefly due to congestion and hyperplastic changes.

Patches of diffused but well-defined *erythema* commonly appear on some of the mucous outlets of the body in the second month after infection. They are most frequently seen upon the fauces, soft palate, pharynx and genital organs. Unless they give rise to soreness or are subject to some form of irritation they may be easily overlooked. Occasionally the erythema occurs in circumscribed spots very like roseola of the skin. With syphilitic erythema of the throat the tongue may become hyperæmic generally or in rounded spots scattered over its surface. When the hyperæmia is intense enough exudation occurs in small or large spots, which become grayish-white in color uniformly or at their irregular borders, and when the epithelium separates and is thrown

off there may be left smooth, eroded or superficially ulcerated spots or patches. These may be found on any part of the buccal mucous membrane, throat and on the lips. They also occur in the nose, on the mucous surfaces of the genitals in both sexes and less commonly in the larynx. Mucous patches thus formed quite commonly on the tip and sides of the tongue may be annoying and painful, especially if irritated. Combined with the effects of hyperæmia the dorsum and sides of the tongue may become irregularly fissured. More or less hyperplasia may also occur in plaques, which have been variously termed leukoplakia, psoriasis and ichthyosis of the tongue. These lesions are obstinate in their course.

Mucous patches vary in appearance with their location, the use or abuse to which the parts are subject, and the vital resistance of the tissues. Not arising usually from papules there is less hyperplasia than in the condylomata lata of the skin and an absence of the elevation of the latter. Occasionally deep ulcers or sloughing of the tonsils may be seen.

Tertiary ulcerations are most likely to attack the gums, soft and hard palate. On the gums the process is apt to assume a serpiginous form, gradually extending along the line of the teeth. On the soft palate deep ulcers may develop and cause an irreparable destruction of tissue if not arrested by timely treatment. The power of replacement and repair in the tissues under medication, however, even when a large amount of tissue has been eaten away and perforation has not occurred, is remarkable. When the hard palate is invaded the bone may become involved and necrosed. Tertiary lesions of the mucous membranes rarely begin before the fourth year, but may occur thereafter up to a late period.

DIAGNOSIS.—Syphilitic erythema and mucous patches are not generally in themselves sufficiently characteristic to be diagnostic except in association with other evidences of the disease. A bluish-red color of the erythema and a whiter line of sodden epithelium at the border of a mucous patch are suspicious signs of their syphilitic nature. Rarely the origin of a mucous patch or ulcer from a papular formation can be determined, and is then in favor of syphilis. The lesions of the latter are also free from the sensitiveness and signs of inflammation at the border of the non-specific mucous sore unless made so by irritation; but mucous plaques often simulate objectively the common "canker sores" or aphthous ulcers so closely as to make differentiation impossible without the presence of concomitant symptoms. Such symptoms are nearly always present or soon appear. Owing to the contagiousness of mucous patches due to syphilis, in doubtful cases the same precautions should be taken as in unmistakable syphilis until the latter can be excluded.

HEREDITARY SYPHILIS

(*Congenital syphilis; infantile syphilis.*)

Syphilis may be transmitted to the second and, rarely, to the third generation, and exhibit many features in common with the acquired disease. There is, of course, no initial lesion, but, like the acquired form, the early lesions tend to be more generalized and symmetrical than those which appear later. Vesicular and bullous eruptions are quite common in hereditary syphilis as they are rare in the acquired disease. The mortality from transmitted syphilis is high, more than one-half die in utero or within six months after birth. In viable infants the disease appears most frequently in the latter half of the first month, but may develop with a rapidly lessening ratio in the succeeding months of the first year. It is rare, however, after the third month, and the prospects of recovery increase the later the period of development. Each succeeding child of syphilitic parents is less likely to be affected by the disease. Whether the disease may be transmitted by one parent alone, the other remaining unaffected, need not be entered into here further than to say that a woman may have syphilis without outward symptoms at all, or until years later, but as to her actual immunity in some cases while carrying a syphilitic child nothing positive can be said.

The general symptoms manifested by a syphilitic infant vary with the effects of the disease on various organs or tissues; most often such symptoms as pyrexia, pallor, peevishness, first appear, followed by more local disturbances of the mucous membranes of the nose, throat, larynx and mouth, of which inflammation of the lining of the nose or "snuffles" is the most common. In some cases, the liver, spleen, eyes and bones may be attacked.

Lesions of the skin may precede the catarrhal symptoms, but usually they soon follow the latter and in a short time the subcutaneous fat is absorbed, the skin becomes loose and wrinkled, and the face sallow and careworn as from worry and age. Added to these surface changes may be the stains of early eruptions and later lesions undergoing evolution or involution. For the many conditions and multitudinous symptoms of congenital syphilis the reader is referred to special articles on the subject. The purpose here is only to mention briefly the surface eruptions or syphilides of the hereditary form. These occur chiefly in the earlier period of congenital syphilis, and are generally of little importance in the advanced stage when lesions of the deeper tissues are apt to develop, perhaps independently of any cutaneous eruption.

Erythematous, papular, vesicular, bullous, pustular and nodular types of skin lesions are seen.

The *erythematous* or *roseola* syphilide is not common in infants. Like most other forms of cutaneous syphilis in infants it most often appears on the buttocks and about the anus. The lesions vary in size, are not always defined and may coalesce to form large areas of distinct coppery or yellowish-red skin.

Sometimes the eruption extends down the inner part of the thighs, up the back, and in rare instances becomes general, even spreading to the soles of the feet. There is likely to be more or less desquamation on the dry parts, exfoliation of the surface of the soles, and on the buttocks subject to moisture separation of the macerated scales may leave the surface raw or glazed. A less common form of erythema has been observed in syphilitic infants, often in association with ulcerating lesions of the mucous surfaces of the mouth. The eruption occurs in irregular bright to coppery red patches of a half inch or more in diameter and is most abundant on the abdomen, lower portion of the chest and inner region of the legs. Desquamation may be moderate or partial.

As a rule, the more extensive the erythema the less likely is the child to recover. In two cases of still-birth and one infant who survived a week, seen by the author, the eruption was generalized.

DIAGNOSIS.—This syphilide may be mistaken for the macular lesions of the *eruptive fevers*. Its localization about the buttocks in most cases, elevation above the surface, tendency to coalesce, usually well-defined margins and early desquamation, will, in the absence of the characteristic symptoms of the exanthemata serve to distinguish it. Other evidences of congenital syphilis may also be present.

This syphilide has been mistaken for *intertrigo*, to which a syphilitic infant is quite liable, however. In the non-specific intertrigo of infants the redness does not usually occur in patches or extend beyond the surface exposed to the irritation from urine and feces, and, as a rule, yields readily to simple measures of treatment. Absences of these differences and the presence of other signs of syphilis ought to make the exclusion of erythema intertrigo easy.

The *papular* form of syphilide may occur in hereditary cases in small size, large papulo-squamous and in moist papular types of eruption.

The *small papule* may appear in conical, acuminate or flat shape. The two first are the most common, and may be distributed irregularly over a small or large surface, chiefly on the legs, and occasionally in groups of six or less. These lesions may be tipped with a scale, sometimes with a small pustule and rarely with a vesicle.

The *flat papule* may be round or angular; it is often situated in groups, slightly raised, smooth, glistening and of a dull red color.

Papulo-squamous lesions are more common than the preceding, and occur in slightly raised elevations, varying in size up to a half inch in diameter. When seen early they are found to be reddish-brown in color, but later fade to a yellowish-brown hue. The surfaces of the papules are covered with thin scales; they may remain discrete and unchanged in shape during their evolution and decline, or rarely circinate, crescentic or figurate forms may develop very much like those seen in acquired syphilis. Patches of this eruption may be widely distributed or confined to the buttocks, limbs, face or forehead. If exposed to much irritation some lesions may ulcerate.

Moist papules are the most common of the papular form, even more frequent in relative occurrence and numerous in points of distribution than the same

lesion in the acquired disease. They are most often seen at the anus and the corners of the mouth, but may develop on any warm and moist region of the skin and mucous membranes, and are not unusual alone as a recurring eruption over a period of several years. At the folds of the skin and outlets of the body moist papules may become fissured. The more superficial, erythematous or scaly lesions may be subject to a like complication and become to a certain extent moist in character.

DIAGNOSIS.—Little difficulty will be experienced in recognizing papular eruptions of hereditary syphilis by the presence of concomitant symptoms of the disease, such as emaciation, snuffles, lesions of the mucous membrane, etc. Eruptions occurring in children who are cachectic from other causes are to be excluded.

Primary *vesicular eruptions* are very rare in hereditary as they are in acquired syphilis, and when observed they very often develop into bullæ. As has been stated in speaking of small papules, vesicles may sometimes cap the later lesions.

Bullous eruptions on the other hand are more common in hereditary than in acquired syphilis. They are always an indication of marked severity of the disease, and when the contents of the blebs are purulent the termination is nearly always fatal.

Bullous eruptions are often present at birth or appear in the first ten days of life in such cases, and may be tense or flaccid according to the quantity of serum, pus or blood held in them. Their sites of predilection are the palms, soles, nail bed and the lower part of face; other parts may be invaded in severe or exceptional cases, but often the palms and soles only are affected. Around the lesions a dark red areola is seen, and when they rupture or dry up, light to dark green crusts form which cover an extending ulcer. When the nail bed is the seat of a syphilitic bleb the nail often turns black and is finally cast off; in milder cases it may be only distorted in shape, especially at the free border.

The DIAGNOSIS from pemphigus and other non-specific bullous eruptions is generally easy; the early occurrence, situation on the palms and soles, character of the bullæ, dark red areola and the history or presence of other signs of the disease will suffice to distinguish its nature even when the eruption appears later than common or in unusual locations. Outbreaks of pemphigoid eruptions in institutions described elsewhere can be distinguished by their endemic type.

Pustular lesions in hereditary syphilis are less rare than the vesicular, but are not common. Aside from the small pustules which sometimes form at the apex of papules their presence is always indicative of cachexia. They are associated commonly with other lesions of the disease, and may occur early or late in infancy; they may develop into ecthymatous sores with ulcerating and spreading bases or be very superficial. Rupial crusts are very rare, while coreless, furuncular-like lesions have been observed in a few cases. Occasionally the discharge from such pustular lesions becomes locally inoculable and impetigo contagiosa may complicate and multiply the surface conditions. The

purely syphilitic pustular lesions are seldom numerous and their recognition is not difficult owing to the invariable presence of other signs of the disease.

Nodular formations may develop in late hereditary syphilis and are almost the only cutaneous lesions of hereditary syphilis in adult life. They are not so extensive as in the acquired disease, but otherwise are like the latter in appearance, evolution and involution, and need no separate description here.

These late manifestations of hereditary syphilis are seldom seen and can be DIAGNOSED with certainty only by the presence of other signs of the disease, past or present, in the skin, mucous membrane, eyes, teeth or deeper structures.

ETIOLOGY AND PATHOLOGY OF THE SYPHILIDES.—Primary syphilis is always due to infection directly or indirectly from some person suffering with the active disease, and is at the onset a purely local process analogous in many respects to diphtheria, tuberculosis, glanders and leprosy, or diseases in the lesions of which micro-organisms have been proved to be constantly present. In other ways the likeness, especially in the existence of a period of incubation, the outbreak of cutaneous efflorescence, and a certain immunity from other attacks, lies with the exanthemata, or diseases, which, though markedly contagious, have not been shown to be, as yet, of microbic origin. Several investigators have announced the discovery of micro-organisms in the lesions of syphilis, notably Lustgarten, Jullien, De Lisle, Schaudinn, and Schüller, but none have stood the scientific tests of their supposed specific nature, and the germ of syphilis which is believed to exist, from the analogy of its mode of contagion and pathology to some germ diseases, remains undiscovered. The immunity of most animals to syphilis is a material hindrance to scientific research in this direction.

In this connection it is interesting to note the recent experiments of Metchnikoff, who reports that in the case of fourteen chimpanzees inoculated, all contracted syphilis after incubation of from twenty-two to thirty-five days. Out of fourteen animals, seven showed secondary phenomena; but these animals are so delicate in our climate that tertiary symptoms have not been observed. It has been proved that syphilitic virus does not pass through bougies which allow the passage of the virus of peripneumonia of cattle. Heated to forty-eight degrees, it loses its virulence; it does not lose it when mixed with glycerine. The recent researches of Schaudinn would seem to verify the conclusion that syphilis is caused by the *spirochæta pallida* of Schaudinn, and is pathogenic for the human being, for anthropoids, and for certain varieties of the lower order of monkeys.

Whatever the virus or element of contagion in syphilis may be, clinical experience proves that it exists in the initial lesion, in most if not all of the secondary lesions of the disease and in the blood during the early eruptive period. Unlike the virus of the eruptive fevers, it adheres closely to the lesions and is only communicated to another by intimate contact with the abraded or other solution of continuity of the epithelial covering of the tissues of the skin or mucous membrane. Such contact occurs in the vast majority of cases in illicit, natural

or unnatural sexual indulgences, but many cases of direct infection have taken place through the habit of kissing, from bites, through touch of the hands, feet or body with syphilitic sores. Thus children have sometimes become infected while sleeping with a syphilitic.

Indirect or mediate infection may occur through the medium of utensils used in eating or drinking, through the toilet articles used in common, through nursing bottles and other articles employed in the care of children, or even through the human nipple of a wet-nurse suckling a syphilitic and a non-syphilitic child. In professional work the virus may be communicated through instruments used in circumcision, vaccination, dentistry, etc. In many occupations liability to infection exists from the common use of tools or appliances, as in shaving, glass blowing, etc. Washerwomen may be infected from the linen of a syphilitic, and in numerous ways in the industrial world the danger of contagion while slight is always possible. The etiology of hereditary syphilis need not be discussed here farther than to say that it may be transmitted from either or both parents while subject to the disease in its contagious stage.

With the development of the syphilides other causal factors, besides a specific virus, have no little influence, and account in large degree for their varying course. These are not peculiar to syphilis, and may be said to be contributing rather than predisposing in their relations. Conditions of constitutional impairment due to malaria, scrofula, alcoholism, the weakness of infancy and old age and often some unknown cause, not made apparent perhaps in any marked disturbance of health, contribute to the insidious spread throughout the system of the syphilitic virus or the products of specific microbes. The symptoms produced by these varying etiological conditions, together with the variable potency or attenuation of the syphilitic poison inoculated, give *individuality* to cases of the disease in a considerable degree. If good vigor and health exist at the time of infection with virus of moderate virulence, the manifestations of the disease may be slight and little or no cutaneous signs of it appear. In rare instances the disease from some controlling cause or causes may remain latent without the usual chronological symptoms of the secondary stage, and years after develop so-called tertiary lesions of the skin or internal organs.

On the evolution of some of the syphilides another set of causes, beyond the normal differences existent in the skin of different individuals, and chiefly external, may operate to modify their development and course. The presence of other diseases of the surface, such as eczema or seborrhœa, may modify or aggravate the behavior of some secondary eruptions. Slight injuries of the skin may determine the seat of lesions, more especially of the tertiary forms. Lack of cleanliness may contribute to secondary infection with pus cocci or other micro-organisms, and many observers now believe that the occasional suppuration of syphilitic lesions is essentially due to a mixed infection of pyogenic bacteria.

There is an inclination to attribute the negative or mild character of some cases of syphilis to a natural immunity of the individual transmitted (perhaps through several generations) from some ancestor subject to the disease.

According to Unna some portions of the skin are always immune from the invasion of the syphilis germ, which while circulating in the whole skin only causes eruptions to appear at limited spots, here again resembling the eruptive fevers. In untreated cases the germs may become more vigorous, overcome the immunity and the number of eruptions consequently multiply. This natural immunity, however, tends to always increase, and finally, even without treatment, banishes the secondary eruptions.

While no definite pathogenic organism has been proved to be the efficient cause of syphilis, the histological *pathology* of its lesions is very like that of some other diseases known to be germ affections and grouped with it in a pathological sense as *infective granulomata*.

There is nothing distinctive, however, in the hyperæmia of the macular syphilide except the temporary enlargement of the superficial and deeper capillaries and a staining of the comparatively few exudation cells in the congested area.

The dense circumscribed cellular infiltration which characterizes the syphilitic papule represents in its beginning and type all other lesions. A larger and deeper infiltration originates the tubercle, and a beginning in the subcutaneous tissue usually denotes the gumma. Variations in extent and intensity of the process, secondary changes and infections produce the various clinical forms of these eruptions.

How long some of the exudation products of syphilis may remain in the tissues after the clinical symptoms subside is uncertain. Neumann has placed it at four to eight months, and Unna recognizes in the histological remains of cells in the tissues after all syphilides an "explanation of the long immunity against infection as well as the points of development of all tertiary growths." Hutchinson had before affirmed practically the same doctrine of the origin of the later syphilides from the residues of early lesions. Unna believes this rejuvenation may take place even from the remains of primary products. If this be true it is easy to see how tertiary syphilides may sometimes occur without the intervening eruptions of the secondary period. It is believed that these cellular elements may remain for a long time about the walls of the vessels and glandular structures inactive until stimulated by some internal or external irritant.

The pathology of the multiple forms of the syphilides due to secondary changes and mixed infections calls for no special discussion. They give objective character to the lesions, but do not change their essential nature. The retrograde process in all syphilitic deposits begins in the oldest parts, usually in the centre. If these lesions are deeply situated the fibrous framework of the infiltrated area is generally atrophied or destroyed with the syphilitic deposit and a scar results.

PROGNOSIS OF THE SYPHILIDES.—The probabilities of a speedy and complete cure of the cutaneous lesions of syphilis rest on several more or less determining factors. The potency of the specific poison may be so weak as to cause only moderate systemic infection and little or no cutaneous efflorescence;

the vigor of the inoculated may be such as to resist the syphilitic invasion in a large degree, or a more than usual immunity may be transmitted from some progenitor. An abundant eruption would indicate an absence of protecting influences. In general it may be said, that in proportion to the number and size of the lesions and their tendency to suppurate, together with the relative degree of constitutional disturbance, is the severity of the disease and the chances of its being controlled early in its course. Much also depends on the continuance of appropriate treatment. At the same time it must be borne in mind that secondary syphilides are usually benign and self-limited in duration. In the tertiary period the earlier the recognition of the lesions and the institution of specific treatment, the more favorable the prognosis.

TREATMENT OF SYPHILIS.—A want of knowledge or a mistaken sentiment regarding syphilis seems to stand in the way of the enactment of public measures of *prevention*. This is remarkable in view of the number of innocent victims of the disease and the dire effects which may follow in time the mildest primary manifestations. Syphilis should be classed with other contagious diseases, and systematic protective regulations enforced for the benefit of the people. Prevention at present rests in the hands of the individual practitioner, who can only advise and insist that his patient must take proper means to prevent the infection of others.

Primary syphilis like other diseases should be treated on the indications afforded by each case. Both general and local hygiene should be enforced to increase the resisting power of the tissues against the insidious invasion of the disease. For the same purpose a constitutional remedy (often a tissue salt) should be given if needed, but so-called specifics should not be given in this stage unless the disease tends to assume a precocious or malignant type, or the primary lesion is so situated as to be likely to destroy the function of or disfigure the part. Strict cleanliness with antiseptic protective dressings should dominate the local treatment of the primary sore when possible.

The unbroken lesions of the *secondary* period require no local treatment other than systematic cleanliness. For pustular eruptions and moist papules the use of boric acid or *sublimite* soap is advisable for local or general bathing. Ulcers resulting from pustular lesions may be induced to heal more rapidly by washing them with a 1 to 2,000 corrosive sublimate solution, and dusting them over with finely powdered *boric acid*, *aristol* or *nosophen*, and when practicable they can be covered with gauze and a bandage. Larger or deeper ulcers of the late secondary or tertiary period should be cleansed daily or oftener, brushed over with the bichloride solution and dressed with some mild antiseptic ointment. A drachm of *boric acid* or *aristol* to an ounce of fresh lard is suitable for this purpose. When the suppurative process of mixed infection is active, washing the parts with a solution of *peroxide of hydrogen* is preferable to the bichloride, and when there is a tendency to much or progressive infiltration a mild mercurial ointment may be employed in dressing the sores.

Syphilitic lesions of the *face* or other exposed parts which give rise to mental annoyance and suffering may be stimulated to resolve by rubbing into

them nightly a two to ten per cent. ointment of *ammoniated mercury*. If not too extensive they can be treated and protected by being brushed over occasionally for a few days with a two per cent. *salicylic collodion*. Nodular infiltrations when situated in exposed or awkward positions may be gently rubbed once or twice a day with a two to ten per cent. *oleate of mercury* ointment. The same application can be employed for the large and sometimes painful syphilides of the palms and soles, but when there is much thickening of the epidermis this must be first thinned with a few days' application of Unna's *salicylic acid* plaster.

In syphilitic affections of the *nails* the parts should be soaked and frequently cleansed with hot *borated* water or a hot solution of 1 to 2,000 *bichloride*, dressed with mercurial ointment and covered with rubber or other protecting fingerlets. If hypertrophic granulations spring up they may be dusted with *calomel*, *iodol* or *iodoform*.

Alopecia due to syphilis may be somewhat lessened by keeping the hair cut short, the surface clean and rubbing in lightly at night an ointment of ten grains of *ammoniated mercury* to an ounce of cold cream.

Mucous patches or deeper ulcerations of the mouth and other outlets of the body should be kept clean by careful use of sprays or washes of 1 to 4,000 *corrosive sublimate* solution. *Calomel* powder may be applied lightly to the surface of destructive ulcers with a cotton holder or by means of a glass tube always attached to a powder blower. Tobacco or alcohol should not be used in secondary syphilis, particularly when any lesions of the mouth exist. Then it will seldom be necessary to cauterize these lesions with *nitrate of silver* or the stronger acid *nitrate of mercury* as sometimes advised. Much the same local measures can be employed for condylomata lata as for mucous patches. *Peroxide of hydrogen* is sometimes preferable as a cleansing wash, and the surface of the lesions should be well dried before the *calomel* is dusted on. If the patches are exposed to friction from opposing surfaces they should be covered with layers of antiseptic gauze or some convenient protecting dressing.

With the appearance of the secondary symptoms or syphilides active internal treatment is to be instituted. The relation of the action of *mercury* and its salts to the syphilitic processes cannot be discussed here. That it is not a perfect similia is well known, but it is the best we have, particularly in its range of action on the skin and mucous membranes. While a similarity can be traced in the anæmia, glandular enlargement and nervous disturbances, it is especially the proneness to suppurative and ulcerative destruction of the surface tissues in the action of mercury which points to its applicability in the treatment of the syphilides, because in them it is this tendency we most desire to prevent and combat and over which it often exhibits a magical influence. A mercurial should always be given with the beginning of the secondary symptoms or eruptions in pretty full and frequent doses of the lower decimal attenuations, but never to the extent of producing salivation, or for an unlimited time. Every few weeks it should be omitted and any other indicated remedy administered in the interim of days or weeks, according

to the urgency of the case, until again resumed. This alternating treatment with mercury should be carried through a period of three to four years, with a gradual lessening of the dose and lengthening of intervals in the latter half of the course.

Choice of a mercurial may depend on the general symptoms as well as the character of the eruption. When the first eruption is purely macular and attended with mild symptoms I prefer *merc. sol.* 1x, in one grain doses. If the mucous membranes are attacked out of proportion to the skin eruption *merc. dulc.* is to be preferred in the same attenuation and doses. These two mercurials are well adapted to the maculo-papular form of syphilide or to the small miliary-papular when there has been slight constitutional disturbance. With the onset of the generalized papular eruption particularly if the first to appear and the constitutional symptoms are pronounced, *merc. cor.* in the 2x or 3x trituration usually fits the case best. Even in the pustulo-ulcerative forms of secondary syphilide this mercurial is often indicated, particularly if the lesions are persistent, with a purplish areola, a tendency to become hemorrhagic and form black crusts. But when there is an early outbreak of the smaller pustular lesions (acneform, variolaform, etc.) or the development of larger pustular forms later in the secondary stage the combined action of *mercury* and *iodine* often cover the case better, both in relation to the general symptoms and the local conditions. The anæmia diminishes more rapidly under the iodide of mercury than from any other of its combinations. When the totality is more like mercury the *protoiodide* can be administered in the 1x trituration; and when a stronger resemblance to iodine exists the *biniodide* is to be preferred, beginning with two or three one grain tablets of the 2x, and later increasing the dose if necessary or substituting the 1x in place of the former. The *bisulphuret* of mercury (cinnabar) is a mild mercurial which may be occasionally indicated when moist papules and condylomata form or when sulphur symptoms are prominent; it can always be given in the lowest trituration. The one grain tablet decimal triturates of the various mercurials are most convenient for use, giving exact dosage and making a gradual increase easy by adding a tablet to one or more of the daily doses. A gradual decrease can be effected in a like inverse order. The intervals between doses may vary from two to six hours, according to the needs of each case.

Occasionally severe destructive or persistent cases of secondary syphilis are seen which seem to call for a more rapid introduction of mercury into the system than is practicable by the mouth. In such cases the mercurial may be given by inunction, fumigation or by hypodermic injection.

Inunction consists in rubbing into a portion of the skin, selected and prepared for the purpose, twenty to sixty grains of a twenty-five to fifty per cent. mercurial ointment made with fresh lard. Taylor divides the surface of the body into eleven regions for the purpose of giving that number of inunctions. These are: 1. The neck and head. 2. The right axilla, arm, forearm and hand. 3. The left axilla, arm, forearm and hand. 4. Right half of chest and abdomen. 5. Left half of chest and abdomen. 6. Right half of back.

7. Left half of back. 8. Right thigh and groin. 9. Left thigh and groin. 10. Right leg and foot. 11. Left leg and foot. It is not important to include the head, neck or hands, but if inunctions are made in these exposed regions a white precipitate or calomel ointment may be substituted for the ordinary mercurial. Before an inunction the portion of the surface to be rubbed should be scrubbed with a lather of soap, washed off with hot water, dried and then wiped over with alcohol. If the operator's hands are sound he need only protect them with an application of oil or soap before, and thoroughly wash them at the end of the rubbing; if abrasions or cracks exist rubber gloves may be worn. About half an hour is required to make a satisfactory inunction, and it is usually repeated every second night, until a course of six to eleven have been given. Then, after a few days' interval, another course may be started if needed, or other methods of treatment substituted. The patient should always be examined before each inunction and if any tendency to salivation appear the treatment should be suspended for a suitable time. It is generally better to wash off the remains of one application just before another is made in a different region, thus keeping only one area anointed at one time. It is probable that the absorption of mercury by the skin is effected chiefly through the glands and that it enters the circulation in a modified form.

Fumigations with mercurial vapor are occasionally used, especially for persistent and localized eruptions and for short periods of treatment. They are given in the same manner as the domestic hot air bath. The patient, after thoroughly washing the skin, is seated naked on a cane-bottom chair, blankets thrown about him and a special vaporizing lamp containing thirty grains of calomel or forty grains of cinnabar is lighted and placed underneath the chair. Very soon free perspiration begins; in fifteen to twenty minutes the drugs are entirely evaporated. The lamp is then removed and after the patient is cooled off a little he retires to bed with the same blankets wrapped about him. On the following day the patient should be warmly clad, wearing flannels next to the skin, and take care not to get chilled. The bath can be repeated two or three times a week according to the effect desired or obtained, but it should rarely be employed for more than four weeks and should be discontinued at any time if it produces any ill effects. It is not adapted to very debilitated subjects.

Hypodermic injections of mercury are only called for when for some reason the drug cannot be given in the other ways named or when a speedy effect is desired. Probably this method is more often employed for syphilis of other organs than for the skin, and few patients will submit to it under ordinary conditions. The objections to mercurial injections are the soreness they produce, often nodular swellings and sometimes abscess. A solution of one-tenth to one-fortieth of a grain of *merc. cor.* in ten drops of distilled water is generally used, no other solution having been found to possess more uniform merits. A hard rubber syringe (preferably holding only ten to twelve drops) with a strong steel needle is used and under strict antiseptic precautions. The gluteal region is selected as best suited for this medication, the skin made aseptic, the needle inserted deeply in the tissues and slowly emptied. Gentle rubbing over the

injected part after the needle is withdrawn helps to diffuse the solution and probably diminishes the after pain and liability to abscess. Hypodermic injections may be repeated every day or two and the dose lowered or increased according to the susceptibility of the patient and the results obtained. Intravenous injections of mercury have not proven satisfactory or superior to the method just mentioned.

In the *late* secondary syphilides and in the *tertiary* period when mercury is indicated, the biniodide, all in all, has proved the best mercurial in the author's experience. Mercury is then often losing its full control over the syphilitic process of infiltration and iodine becomes in a way a more potent element. Iodine, however, is never the specific for syphilis that mercury is, and needs to be harnessed with another substance to do its best work. Hence its value combined with mercury and for certain conditions in union with potassium or sodium. *Iodide of potassium* is especially indicated for the denser and deeper infiltrations in or from syphilis. It may be of service therefore in the secondary period when there is unusual infiltration and swelling of the tissues involved, and also when the lesions tend to become hemorrhagic. But the action of iodide of potassium is to *subdue* rather than cure syphilis, and in the secondary stage of the disease at least is always to be discontinued when it has accomplished its special work. In the tertiary period when there is a continuation or revival of cell products from syphilis without contagion, the iodide should be given longer to subdue the slower but more dense and persistent tendency to infiltration of the skin and other tissues. Occasionally when important organs are endangered the dose may need to be rapidly increased to its maximum quantity. Seldom is it necessary to give it in excessive doses, which do not by any means carry a proportionate effect. The writer has seen large subcutaneous gumma disappear under the influence of fifteen grains daily of the iodide given in divided doses. In tertiary syphilis mercury is still needed to complete a cure, and the biniodide can be administered with the iodide of potassium (mixed treatment). or still better, the 2x tablets in alternation with the latter. When the more urgent symptoms have subsided one drug alone (perhaps in smaller doses) can be given for a few weeks, and then the other substituted, and so on by alternate substitution as long as may be needed.

Mercury and the iodide of potassium are not the only remedies for syphilis. In nearly all cases a cure may be facilitated by occasionally suspending these so-called specifics during a lapse in the activity of the disease and administering for a time a more indicated drug. The fact that the better the general health is maintained the greater is the relative immunity of the tissues to the advances of syphilis not only points to the probable value of individualized therapeutics, but experience has proved its utility in the disease. Among drugs see indications for *Argen. nit.*, *Arsen. iod.*, *Aur. mur.*, *Carbo animalis*, *Caust.*, *Coni.*, *Condurango*, *Cup. Ars.*, *Hepar*, *Kali bichrom.*, *Lach.*, *Lyc.*, *Mez.*, *Nat. arsen.*, *N. mur.*, *Nit. acid*, *Pet.*, *Phos.*, *Phyto.*, *Sepia*, *Sil.*, *Staph.*, *Stilling.*, *Sul.* and *Thuja*.

The *hereditary syphilides* are to be treated on the same principles as the acquired eruptions with due allowance for age and delicacy of tissue. If the father was syphilitic at the time of conception or the mother be syphilitic during pregnancy the latter should be systematically treated throughout her pregnancy, both for her own and the child's safety. After birth a syphilitic infant may be treated still through the mother indirectly, the latter being under treatment and nursing her child. Often this is impracticable and inadequate, and remedies need to be administered to the child direct. Hypodermic medication cannot be employed, and inunction or fumigation is seldom practicable for a child in the first year of life. Mercurials and other indicated drugs can be given usually in the 3x preparations without ill effects, and if the cutaneous lesions are severe or persistent a mild ointment, such as fifteen grains of calomel to an ounce of fresh lard, may be employed locally. In all cases absolute cleanliness of the diseased skin should be maintained, and when a medicated ointment is not used the affected skin, especially about the buttocks and genitals, should be protected with applications of a bland fat or oil renewed as frequently as needed. After the first year of life inunctions may be cautiously used if required by the persistency of the disease. For this purpose five to twenty grains of a fifty per cent. mercurial ointment may be employed every two or three days, according to the age of the child and the intensity of the disease.

Treatment with mercury should always be intermittent, either suspending all drug treatment or giving other indicated and reconstructive remedies in the interim. The course of treatment should extend over three years or more.

LEPROSY

(*Elephantiasis Græcorum; Lepra; Satyriasis; Leontiasis.*)

DEFINITION.—A chronic endemic contagious disease due to a specific bacillus, insidious in its development, characterized by the occurrence of erythema, anæsthesia, pigmentation, neoplastic growths, atrophies, ulcerations, and deformities varying with the parts affected, and usually resulting in a profound and fatal cachexia.

Leprosy probably had its origin before the beginning of historical records and is accounted the most ancient of human diseases. In some countries it has been endemic for centuries; in other and more enlightened lands it has in the course of many years slowly declined and ceased for a time to reappear. But it has progressively invaded new countries and to-day has a wide distribution, estimated to be twenty-five per cent. of the habitable portion of the earth. In this country lepers are colonized or have been found in isolated cases in Louisiana, Minnesota, Iowa, Wisconsin, California, Colorado, Oregon, Utah, South Carolina, Texas, Florida and New York. Sporadic cases may appear in any large city, while it is estimated that the number in the United States

is from three to five hundred. Seven cases have been under the care of either the author or editor during the past few years, and the former observed in 1902 the varied manifestations of the disease in the Norwegian lepra colonies. While the number in New York is not large, it is probable that new cases will occasionally appear. Some are to be found in New Brunswick, Canada, but the Sandwich Islands afford the most recent illustration of the rapid development and spread of the disease under some favoring conditions of climate, race, etc.

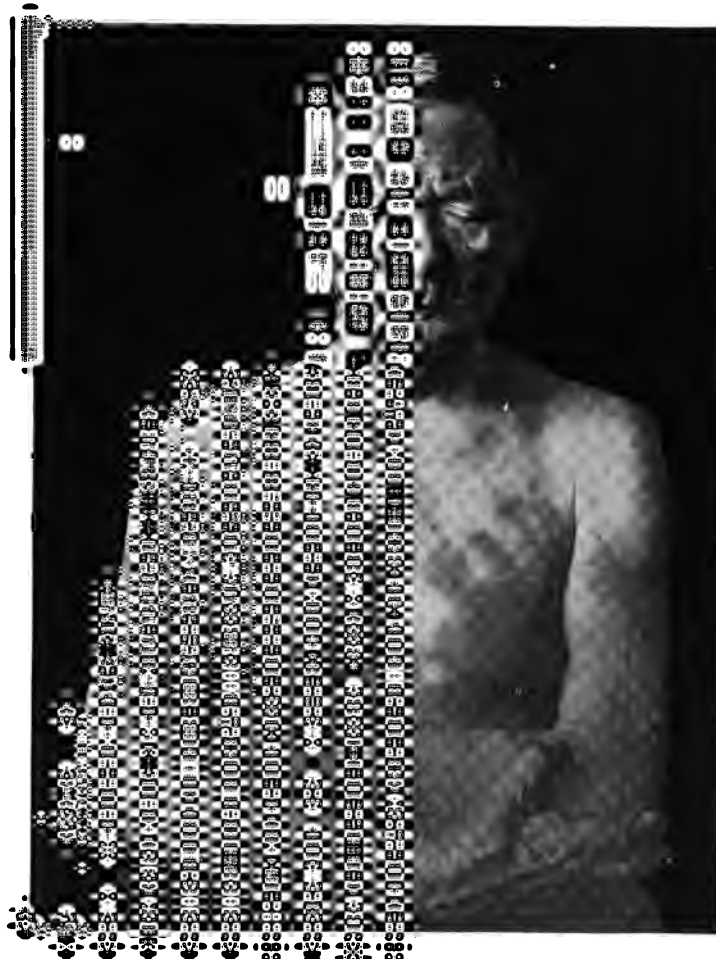
SYMPTOMS.—The manifestations of leprosy vary with the form and stage of the disease. Two principal forms are described, the *tubercular*, chiefly involving the skin and mucous membranes, and the *anæsthetic*, chiefly attacking the peripheral nerves.

These two forms may coexist in the same patient and have been termed the *mixed form of leprosy*. Impey also describes a fourth form due to a mixed infection from syphilis and leprosy, and designated by him as *syphilitic leprosy*.

The *stages* of the disease are not well defined, but a period of incubation, of prodromata, and of eruptive and degenerative manifestation has been recognized.

The stage of *incubation* is very uncertain as to duration, because there are no recognizable *initial lesions* in the vast majority of cases, and it is probable that inoculation does not occur often through the skin. When a person comes from a leprous to a non-leprous country without any signs of the disease, and, after an interval of health, develops prodromal or eruptive symptoms of leprosy it is a logical inference (drawn from a group of such cases) that such interval represents some portion of the stage of incubation. Thus, from observation, it has been estimated that this period may vary from a few weeks to years; even as high as ten, twenty and forty years have been given. If a patient resided some years in a leprous country it is manifestly impossible to fix the date of the beginning of an incubation ending years later. One of my cases was born in South America and came to this country when fourteen. Two years later he began to show the first signs of leprosy, and when sent to me for diagnosis a year later, or three years after arriving in this country, he exhibited well marked macular anæsthetic lesions. Another case, male, age 32, had the history of having lived in the West Indies for several years, but returned to this country sixteen years before the tubercles of leprosy developed, though during the two previous years he had suffered from prodromal symptoms of debility, neuralgia, etc. A near relative of this patient who left the West Indies at the same time was said to have developed the disease five years before and to have lived in seclusion since. It is quite possible, though not evident, that my patient may have been inoculated in some way by this relative and that his incubation was much shorter than was apparent from his history alone. Another case of advanced disease seen in Norway gave a history of emigration to this country when fourteen years of age; developed leprosy at thirty-five while living at Chicago, and returned to Norway twelve years ago.

There must be great differences in the resistance of the tissues of different



PROSY

ARIETY

Probable duration of disease, ten years, commenced some years before. Nearly twenty years in the West Indies in the proximity of lepers. Nodular lesions on the left knee, then nodular lesions involving the eyebrows, lips, chin and dependent portions enlarged and nodular on the body and arms, as shown in the photograph. The patient has become blind as a result of arsenic, and *arsenicum album* have been given to great degree.



—LEPROSY

and in Fig. 115, showing the discoloration, and thickening of the skin.

individuals to the germs of leprosy as to all other contagions, and these differences are modified in various ways by food, habits, climate, etc. Nearly all the cases of prolonged incubation have been in people who removed from a leprous region to one in which the disease was not endemic.

Prodromal symptoms follow the stage of incubation and may vary in duration from three months to a year or more. During this period in most cases of tubercular leprosy intermittent febrile disturbances occur, often preceded by chills and other common features of pyrexia. There may be sensory or motor disturbances, drowsiness, depression and general weakness which unfits the victim for ordinary duties or work. Epistaxis may occur from the general condition in the prodromal period, and, at a later one, from ulceration of the nasal mucous membrane. General or local disorders of the perspiratory function are not uncommon either from constitutional weakness or vasomotor disturbances. Sensory disorders, such as headache and vertigo, are sometimes frequent, but tend to become more severe with a nightly aggravation in the next or active stage of the disease. Neurotic prodromata, however, are especially common in the anæsthetic form of leprosy, but they vary greatly in character and intensity and are sometimes so ordinary or mild in nature as to escape notice. Numbness was the only sensation experienced in the prodromal stage by one of my patients; the location of the sensation afterwards became the seat of the lesions.

In the anæsthetic form abnormalities of sensation may take the form of more or less severe itching, formication, tingling, pricking, smarting, burning, stiffness, etc. These are not constant, often shifting their location as to surface and depth. Sometimes the motor nerves are affected and locomotion interfered with to a considerable degree.

Leprous eruptions.—The *eruptive stage of tubercular leprosy* shows first on the skin in large or small spots which resemble ordinary erythema; they may be few or many, confined to one region or scattered over the body. The color disappears on pressure, and the patches may spontaneously disappear and reappear several times. The affected skin feels slightly swollen and tense, is somewhat hyperæsthetic and an excessive quantity of sweat is secreted therefrom; with the full development of the macular eruption febrile symptoms, if present, usually subside. Finally most of the spots fade away and leave no trace behind.

Some of the spots fail to resolve, but become more pigmented and sharply marked until they become stationary. In these prominent patches the first tubercular infiltrations occur; usually these nodules resemble a split pea in size and shape, are of a pinkish or yellowish-brown color and may remain stationary or progressively enlarge by fresh deposits of leprous material. The deposit is often preceded by fever, and new tubercles generally appear in crops. The sites of predilection are the face, ears and extremities, but they may appear on any part of the body. According to Impey the first tubercle is apt to develop at the inner angle of the eyebrow and causes a thinning of the growth of hair. This loss of hair with a thickening of the skin at this point

and following prodromal symptoms is diagnostic. Wherever the leprous deposit occurs the skin becomes thickened and elevated into round or flat, sharply outlined prominences which, though close together, are often clearly distinct from each other. They are of soft consistence, of a yellowish or brownish-red color, sometimes reach the size of a walnut or larger, and by aggravation or confluence may form large masses or extensive plaques. The deformity resulting from leprosy is generally progressive, especially on the face, which becomes hideous and pathognomonic in aspect.

Leprous infiltrations may go on increasing in size and extent and becoming darker in color for three or four years before ulceration occurs. Occasionally they undergo absorption, leaving stains or scars to be succeeded by a fresh crop in the same or other regions. Sometimes fibrous changes transform them into small hard masses, which may persist without change indefinitely or take on keloidal growths.

The *ulceration* of leprous growths begins with a softening and disintegration which goes on until a shallow, indolent ulcer is formed, secreting a mucilaginous liquid, sometimes drying into crusts. These ulcers may heal spontaneously or under treatment, or they may increase in size until they become extensive in area and depth; much tissue may be destroyed in their course even down to the tendons and bones. The tributary lymphatic vessels, near and distant glands become swollen and painful, and later may suppurate.

The *mucous membranes* may become affected early or late in the disease. Morrow believes that in a majority of cases leprosy first manifests itself in the mucous membranes, pharynx and upper air passages. Impey, on the other hand, coincides with the more general view that these parts may commence to be affected about four years after the advent of tubercles in the skin, and that the parts are attacked in order nearest the surface inwards, viz., the lips, tongue, palate, fauces and larynx. The first observer mentions the slight husky and rough voice and coryza as among the earliest signs of the disease, and Impey says when the throat is affected "the voice, which at first is harsh and croaking, soon becomes sibilant and almost inaudible." When infiltrations form in the nose the voice assumes a nasal tone, and much distress, almost suffocation, is sometimes felt from the obstructive growth of tubercles in the air passages. Tubercles of the lips soon ulcerate and form painful and persistent ulcers; these and other ulcers of the mouth and nose secrete a fetid discharge which mingling with the odor from the cutaneous lesions is said to produce a characteristic sweetish smell.

Leprosy beginning in childhood and youth may cause an arrest in physical growth, sexual development and a corresponding deficiency in the production of new hair.

The progressive advances of leprosy may be slow, extending through many years, with increasing intensity and suffering until the patient's endurance is so far exhausted that he falls an easy victim to some secondary or intercurrent affection. A few die directly from obstructive leprous growths in the throat, many from asthenia, consequent on the excessive drain from ulcerating sores;

others from secondary kidney and intestinal disease, while a large number succumb to intercurrent attacks of pneumonia, bronchitis, erysipelas, etc. One mild case of tubercular leprosy seen by the writer had existed for three years without any apparent effect on the general health.

The *eruptive stage of anæsthetic leprosy* begins with erythematous or bullous lesions. The stage of incubation is generally longer than in the tubercular form, the prodromal symptoms more distinctly neurotic, and the course of the disease less varied. The *erythematous* spots are very like the primary lesions of tubercular leprosy in appearance, but they are not evanescent, rather they are less hyperæmic, more pigmented, persistent, and tend later to enlarge at the periphery while they clear somewhat in the centre. At first the whole lesion may be hyperæsthetic, but subsequently this is limited to the darker and advancing periphery while the central portion becomes usually more and more anæsthetic. Loss of sensation may sometimes be found in apparently unchanged portions of the skin, particularly when supplied in common with the leprosy macule by a branch of the same nerve. Occasionally hyperæmia and pigmentation do not occur and the primary visible change in the skin is the absorption of its normal pigment. Loss of color may be by gradations, whether primary or secondary, and rarely the skin becomes white as in leucoderma.

The complex *sensations* of the skin may not be all lost at once; some fibres may be irritated while others are deadened. Thus the tactile sense may be preserved for a time after either or both of those of temperature or pain are abolished, or vice versa. The disassociation of sensation may go farther even, and the sense of heat felt and the sense of cold lost, or the opposite. In a more advanced stage all sensory functions of the affected skin are abolished, the whole thickness of the skin is affected, secretion from the sweat and sebaceous glands diminishes or ceases, the hair turns white or falls out, the surface becomes dry and atrophy of all parts occurs. Blunted sensibility and lowered vitality of the skin during this period may result in cutaneous lesions from unfelt injuries of various kinds. Indeed, Impey believes the bullous lesions to be mentioned are the result of accidents and not directly due to the leprosy poison, but Morrow says bullæ may precede by several months the appearance of any macular lesions.

Bullous eruptions may develop suddenly with or without sensations of stinging, formication, etc. They are of a variable size, filled with a clear yellowish serum and rupture in a few hours, leaving an excoriated surface beneath. Such lesions heal rapidly and leave stains or cicatrices. Slight frictions and moderate heat, which would only moderately redden the surface of the normal skin, may produce in the leprosy blisters or even ulcerations.

The *macules* of anæsthetic leprosy may remain discrete or merge together and form more or less extensive irregular or gyrate patches, characterized usually by sharply defined, slightly elevated reddish margins and paler atrophic centres. Exceptionally the skin of the centre of a patch may be partly restored to health and then the color may return, even to a darker shade than normal. More or less desquamation takes place from the surface of a completely devel-

oped patch, and sometimes the skin presents a shiny or glossy appearance, as an effect of the complex atrophy of the parts.

So long as the disease affects only the *sensory nerves* it may become quite extensive without materially affecting the general health. Suffering from neuralgic pains, eruptive and other annoyances may be experienced, or the manifestations may be so slight as to awaken no suspicion of their grave nature. Occasionally many years may elapse before other nerves, insidiously attacked, are disorganized and the terrible results of anæsthetic leprosy appear. This later advance of leprosy affects particularly the nerves of the face and extremities; the ulnar and peroneal nerves especially seem to be seats of predilection for the ravages of the leprous bacillus. Regular or interrupted thickenings of the ulnar nerve up to the size of the little finger may sometimes be felt behind the olecranon early in the advance. It is sensitive to touch, and pressure may give rise to pain at distant points along its course to the fingers. Other nerves of the extremities may undergo similar changes. Later, the enlargements and tenderness lessen the progress of degeneration.

The effects of *complex nerve degeneration*, such as partial or complete paralysis, atrophy and deformity from contractions, may often be seen first in the little finger; the first phalanx becomes forcibly extended while the middle and terminal phalanges are flexed towards the palm, constituting, when all the fingers are involved, the "leper claw." Atrophy follows paralysis and often the abolition of the sensory and trophic functions of the nerves lead to other deformities and mutilations. Blebs may appear over the phalangeal joints, ulcerate, expose and destroy the deeper parts; unfelt injuries of the surface may pursue a similar course. Gangrenous changes may cause a spontaneous amputation of the fingers, or absorption of the bone may take place at some point, and one after another phalanx lost without ulceration or gangrene. Stumps of the fingers of different lengths and pointing in various directions may exaggerate the actual mutilations to the utmost degree. The feet undergo similar mutilation and deep plantar ulcers are not uncommon in those who habitually go barefoot. As the disease progresses the muscles of the hand, forearm and shoulder may become successively affected. The corresponding muscles of the foot and leg are not usually involved to the same extent as the hand and arm.

The nerves which supply the face may be attacked at an early stage of the disease and characteristic deformities result. The first division of the fifth cranial nerve and branches of the seventh are usually affected. The patient may be unable to close the eyes from paralysis of the orbicularis; the secretion of the lachrymal gland may cease, thus leaving the eye-ball exposed to irritations and disease, especially of the cornea; or if the tear gland is not affected the everted lower lid permits the secretion to run down over the cheek. The lips and cheeks may be flaccid and drooping from paralysis of the buccal branch of the seventh nerve; if only one side is affected the face is drawn to the opposite side.

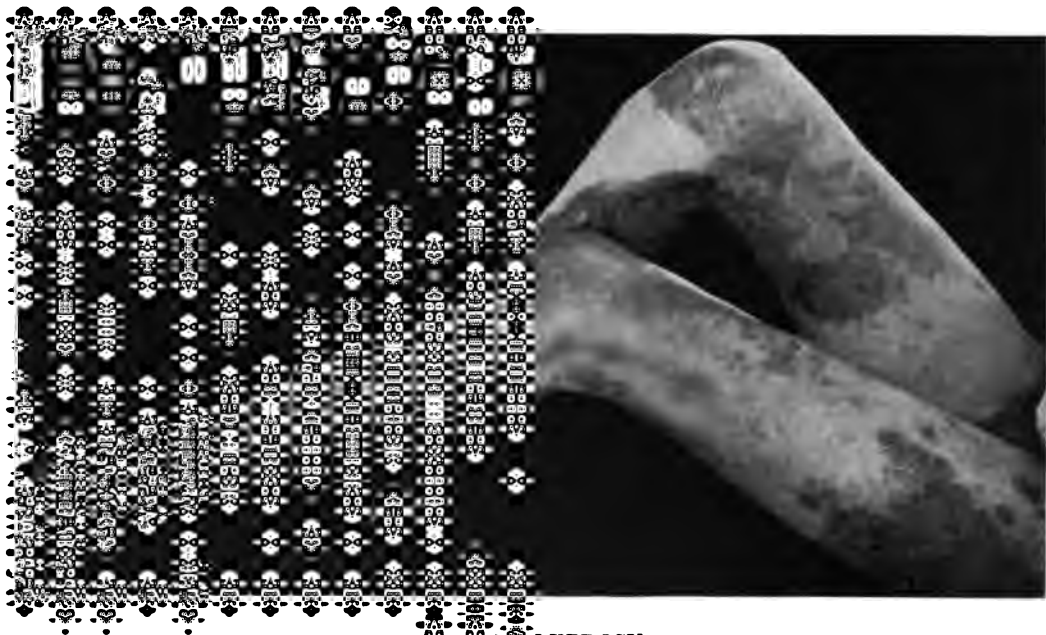
The sensory nerves of the throat may be affected so as to interfere with the function of deglutition, cause regurgitation through the nose, etc. Impey did



LEPROSY

ESTHETIC VARIETY

years. Duration of disease, three years.
 worse on the back and arms. This sub-
 year after the above photograph was taken.



LEPROSY

MACULAR ULCERATIVE TYPES

Lesions are generalized and consist of macules, Duration of disease, four years. Tumefaction is pronounced improvement in the patient's general

not observe any of these effects, and states that in anæsthetic leprosy he "invariably found the mucous membranes healthy." The victims of anæsthetic leprosy succumb to intercurrent diseases, or finally die from the exhausting effects of gastric or intestinal disorders induced by the disease.

The eruptive manifestations of *mixed leprosy* include lesions of both the tubercular and anæsthetic form; one or the other may predominate. The type is apt to be characterized by chronicity and severity, from the presence of new growths and the atrophy and destruction of normal tissues and parts.

Syphilitic leprosy is described briefly by Impey, who claims that syphilis and leprosy may coexist and ravage the human tissues at the same time. Such cases are characterized by earlier ulcerations of the skin, loss of hair in large patches, swollen glands, indolent abscesses, ulcerations of the mouth and throat, and necrotic destruction of bones, especially of the nose. To these may be added the manifestations of any form of leprosy.

Duration.—This varies widely. From fairly reliable information and observation of a number of cases of each form, excluding those who recovered, Impey makes the average duration in years: forty-four cases of tubercular leprosy 5.5 years, the shortest duration 1 and the longest 13 years; forty-one cases of anæsthetic leprosy about 11.5 years, the shortest 2 and the longest 31 years; twenty-three cases of mixed leprosy about 9.25 years, the shortest 1 and the longest 23 years.

Inasmuch as the tubercular form prevails most in a new country or among a virgin population, and the anæsthetic in greater relative frequency with the continued prevalence in after years, it follows that the average duration may vary considerably in different countries or regions with the prevailing form of the disease.

ETIOLOGY AND PATHOLOGY.—The efficient cause of leprosy is the *bacillus lepræ* discovered by Hansen in 1874. This micro-organism resembles the tubercle bacillus closely, but is found in greater numbers in the surface lesions, in groups, and is more readily stained than the latter. After some fluid expressed from a leprosy tubercle has been prepared on a glass slide and stained with fuchsin the bacilli may be seen, under a microscope, with a power of 300 diameters, as pink rods, in length about one-half the diameter of a red blood corpuscle, in width about one-fifth their length. These germs may be always found in the tubercles of leprosy, but are not always found in the peripheral nerves involved in the anæsthetic form. Whether it is the bacilli or their products which produce the mischief is not known. They have been found by some investigators in the liver, spleen, kidneys, lymphatic glands, hair follicles and sebaceous glands, but not in the physiological secretions with possibly one exception; when the mucous membranes are attacked numerous bacilli may be found in the secretions from the affected parts. Males are more subject to the disease than females in the proportion of nearly two to one; it is rare in children and never occurs in infancy. It is probable that there may be several if not many predisposing or contributing factors in the causation of leprosy which operate to render the tissues susceptible to its special

cause or contagion, as outbreaks of the disease in a new region can always be traced to the immigration of lepers. The contributing causes pertain largely to the individual, and to conditions which might predispose to other inoculable as well as to non-contagious diseases. Excesses of all kinds, bad hygiene, insufficient food, etc., may so diminish vital resistance as to render the normally immune tissues susceptible to the action of a direct cause. Certain influences may be attributed to climate, race and sex, but collective or personal *habits of living* probably underlie these factors. When leprosy has soon gained headway among a people there have always been found to exist careless and promiscuous ways of living. In some instances the mode of contagion is direct and may occur in the act of coitus, kissing, bodily contact while sleeping or otherwise, especially when abrasions or wounds of the surface exist. The poison may be transferred through the medium of eating utensils, toilet articles, wearing of clothing previously used by a leper, possibly by insect bites, and sometimes from inhalation of the dried secretions floating with other dust in the air.

The *pathological* changes set up by the presence of bacilli in the tissues or by their products (toxines and mucus), are inflammatory in nature, resulting in diffuse *granulomatous* growths characteristic of the leprous tubercle. Its peculiarity consists, according to Unna, "on the one hand, in its limitation to the connective tissue elements, and especially to the lymphatic system of the skin, and on the other, in the enormous growths of organisms, whose number far exceeds anything we are accustomed to find in other infectious diseases." It is not the very moderate cellular growth, but the numerous bacilli encapsulated in their own mucus that gives pathological character to leprous tubercles, and, in Unna's words, "to the paucity of the cellular elements and the preponderance of the organisms dormant in the bacillary mucus, the remarkable indolence and relative benignancy of these growths may be ascribed."

In anæsthetic leprosy the pathological changes occur in and about the peripheral nerves from temporary or more prolonged presence of bacilli or from their products, resulting in a form of neuritis and consequent partial or complete loss of nerve function. Unna describes an *angio-neurotic* stage or form, and a secondary bacillary embolic nerve leprosy, which may be quite independent of the former. The first is characterized by hypertrophic changes and a few bacilli; the second by bacillary embolism which gives rise to local hyperæmia, staining and cedema. If the latter occur in areas previously affected by angio-neurotic changes (perhaps unnoticed), thickening takes place and permanent cutaneous lesions result. But when the hyperæmia and pigmented spots of embolic origin are developed in previously sound skin the bacilli may at once disappear and the visible cutaneous lesions rapidly and completely fade away. These constitute the temporary lesions of macular leprosy.

DIAGNOSIS.—Typical cases of the disease are easily recognized in a leprous country or in persons who have lived in such regions. Atypical sporadic cases may be difficult to diagnose as the prodromal symptoms are not peculiar to

leprosy. It may need to be differentiated from syphilis, lupus, erythema multiforme, tinea versicolor, leucoderma and morphea.

Syphilitic macules are smaller, less colored, less permanent than those of leprosy, and do not seek the face. The tubercles of syphilis which may be closely simulated by lepra lesions are smaller, of a deeper red color, more grouped, ulcerate more readily and are more indiscriminate in their location, while leprosy has a predilection for the face, ears, hands and arms. Very often when syphilis exists a history or other evidences of the disease may be found. The two diseases may sometimes coexist.

Lupus nodules are softer than those of leprosy, smaller and more circumscribed, grouped in patches in which scar tissue is often found, and do not produce the extensive thickening of the brows and ears frequently resulting from the latter. *Lupus erythematosus* lacks the anæsthesia and other neurotic symptoms of macular leprosy, and is much less apt to show multiple lesions.

Erythema multiforme and the erythematous spots of early leprosy may be very like in appearance. The sites of predilection are different, the spots are larger in leprosy, tend to become nodular and are slower in their involution in comparison with the sub-acute course, and progressive gradations in color of multiforme erythema.

Tinea versicolor and the pigmented spots of anæsthetic leprosy may be easily differentiated by the fine scaliness of the surface of the patches in the former, a discovery of its characteristic fungus and an absence of sensory changes.

Leucoderma and the achromic spots of leprosy possess little in common except loss of color. The former are more irregular in outline, whiter and more sharply defined by a pigmented border, but the patches are otherwise normal in texture and sensibility. In leprosy there is not only loss of pigment, but the skin is atrophic, depressed and more or less anæsthetic. *Morphea* can always be distinguished from the atrophic patches of leprosy by its hard, lardaceous waxy-white surface and its violaceous border.

Finally in doubtful cases a microscopic examination of the fluid obtained from a leprous tubercle will reveal the characteristic leprous bacillus, while in anæsthetic leprosy the loss of sensation is always diagnostic.

PROGNOSIS.—Rarely is leprosy cured. There may be long periods of arrest in its progress, but sooner or later the advance is renewed and goes on finally to a fatal issue. Exceptionally the disease subsides spontaneously or from treatment and does not return. Cases of recovery have been noted where the patients ultimately died from some other cause. Removal to a temperate climate early in the course of the disease favorably affects the prognosis.

TREATMENT.—Efforts to prevent the spread of leprosy have been directed chiefly to measures for segregation. The isolation of lepers afflicted with open (ulcerating) lesions is undoubtedly demanded for the protection of a community in which they happen to be dwelling, because discharges from

such sores are loaded with bacilli, but there is no just ground for depriving persons afflicted with the non-ulcerative or macular form of the disease of their liberty, because it cannot be proved that they are contagious or dangerous to the public health. As a matter of precaution, the latter case might be listed and occasionally examined for any development which would menace the safety of others. Systematic segregation and improved ways of living have greatly diminished the prevalence of leprosy in Norway, where there are now only about five hundred cases, of whom one-half live comparatively unrestricted outside of hospitals. The bacillus lepræ probably does not live outside the human body, and hence, under conditions which exist in the eastern part of this country, the disease is more likely to die out than to spread if the very few ulcerative cases are properly cared for in private or public institutions. In the latter cases all discharges from the skin or mucous passages should be sterilized or burned up to prevent all possible infection.

There are no specifics for the cure of leprosy. Methods of treatment which have been announced as beneficial by some have been later pronounced ineffectual by others, so that to-day there is no practical unanimity regarding treatment, especially by internal medication. All observers agree as to the good effects following from improved ways of physiological living. Change to a temperate climate, plenty of sunlight, outdoor exercise, a plain and nourishing mixed diet, suitable clothing, systematic bathing and inunctions of the skin with oil all help to build up a resistance to the disease. Leprosy seeks the exposed surfaces of the body, and cold or chill is believed to be an exciting cause of its activity. The avoidance therefore of unnecessary exposure and the exercise of care in wearing sufficient clothing for protection may be important items in the management of a case.

Locally, inunctions of oil may be employed in all cases, as it is always grateful to the skin of the leper, owing to the tendency to dryness. *Chaulmoogra oil* is most highly recommended for local use in the proportion of one to fifteen of sweet oil. It has been given internally at the same time in three to eighty drop doses in emulsion or capsules three times a day; it is very irritating to the stomach and cannot often be given in large doses, which are said to be most effective.

Gurjin oil has been employed with reported good effects; internally in doses of one or two drachms with an equal part of lime water, and locally diluted with three parts sweet oil or in emulsion with the same quantity of lime water. Oil of *anacardium occid.* and oil of *hydnocarpus ineb.* have been recommended. The latter is said to have the most rapid effect, given in ten to thirty drops mornings in hot milk, and applied locally twice a day. The diet at the same time is chiefly limited to eggs, milk, butter, mutton, fowls, vegetables and fruit. Alcoholic drinks, tea, coffee, beef, pork and fish are not allowed.

Impey states he has seen very little effect from the use of several of these oils, and others are inclined to believe that the use of the simple linseed or olive oils is nearly as beneficial, the main effect arising from the frictions rather than from the peculiar nature of the oil.



LEPROSY

CHETIC VARIETY

A patient, fourteen, born in this country, but who pre-
 sented in America for several years. Disease began
 with small reddish macules on the back of the right
 shoulder at times, but gradually enlarged, coal-
 escing into a large patch below the knee, and after months united in
 a single mass. During the first year similar lesions developed
 on the back just below the loin and pursued the
 same course. The patches were completely anæsthetic to pain except at the
 irregular borders, which are perceptibly hyper-
 æsthetic. The color varies from a yellowish-red to
 a dark brown. Where the process is active, it is more dis-
 tinctly smooth, almost shiny in spots, as though
 the desquamation is most apparent. Cured



-LEPROSY

ected in Fig. 119.

Many local reducing, stimulating or antiparasitic agents have been tried on leprosy lesions, but without any certain effect. Unna recommends an ointment containing five per cent. each of *chrysarobin* and *ichthyol* and two per cent. of *salicylic acid*. He uses resorcin in place of chrysarobin for women and children. When the lesions break down and ulcers form, the indications for local treatment are the same as for any contagious sore, cleansing and dressing with antiparasitic and deodorizing applications when possible. *Salicylate of soda* ointment is chiefly employed in Norway, and Impey mentions *iodoform* ointment as the most beneficial application and of its odor being actually appreciated by leper patients. Oakum or other absorbing material can be placed over discharging lesions.

Surgical measures are sometimes indicated. Nerve stretching has proved beneficial in anæsthetic leprosy for the neuralgic pains along the trunks of a nerve, and in healing perforating ulcers of a part supplied by a nerve. Masses of tubercles may be sometimes excised, necrosed bones removed and ulcerating surfaces curetted with benefit to the patient. Surgical wounds heal rapidly, owing to an excess of fibrin in the leper's tissues. Tracheotomy or intubation may be required for stenosis of the larynx due to leprosy growths in the pharynx or larynx. In rare cases tubes have been worn for several years and finally discarded with a relief of the obstruction. *Galvanism* has proved useful in helping to restore the function of the sensory nerves in anæsthetic patches.

The *internal* administration of oil has been mentioned. Besides these, such drugs as carbolic acid, sulpho-ichthyolate of sodium, salicylic acid and salicylate of sodium, salol, creosote, arsenic, iodide of potassium, nux vomica, strychnia, and hoang nan, have been given in full doses with reported favorable effect in the hands of some and without benefit in the observation of more. Chaulmoogra oil in tubercular and mixed cases, and strychnia in the tropho-neurotic form, according to Morrow, give the best results.

It is not improbable that cases of leprosy amenable to treatment might respond to drugs selected after a careful individualization of each one. My own limited observation supports this view. One of my cases of macular anæsthetic leprosy, which had been steadily advancing, was apparently arrested and later cured on *Hydrocotyle* 3x, without local treatment. A case of mixed leprosy seen once was later reported to have improved on *Sepia* and the local application of a five per cent. salicylic acid collodion to the few lesions on the face, one of which had begun to ulcerate. A number of other drugs show conditions or symptoms in their pathogenesis resembling those of leprosy. See indications for *Arsen.*, *Aurum mur.*, *Cal. phos.*, *Kali brom.*, *Lach.*, *Merc.*, *Nit. acid*, *Pet.*, *Phos.*, *Rhus tox.*, *Secale* and *Silicea*.

YAWS

(*Frambæsia; Polypapilloma tropicum, etc.*)

DEFINITION.—An infectious and contagious disease of the tropics, characterized by the evolution of an eruption in stages up to a fungoid tumor, which may remain stationary for a time and then gradually disappear without leaving any ultimate trace, or, less often, break down and form ulcers.

SYMPTOMS.—The stage of incubation lasts from one to two weeks, during which there may be loss of appetite, feverishness, perspiration, pains in the extremities and languor, but no symptom special to the disease. These prodromata are often absent in adults.

The stage of *eruption* is sometimes preceded by a dry, scaly condition of the surface, before the characteristic papular lesions gradually appear in various parts of the body, attended with swelling and tenderness of the lymphatic glands. The primary eruption is completed in about two weeks, and consists of pin-head sized papules with yellowish points, bordered by a red or darker areola. In the next stage the papules begin to enlarge, especially in breadth, and become covered over with yellow crusts. As one of these lesions reaches the size of a tubercle the crust falls away, leaving exposed to view a fungus-like surface from which exudes a yellowish, offensive and adhesive fluid. These growths may reach a quarter of an inch in diameter at the top, smaller at the base, and sometimes become confluent in a large patch; they are hard, freely movable with the skin and reach their acme of development in one to two months. The appearance of these growths in the skin has been compared to a raspberry, strawberry or mulberry.

After a variable time the stage of *retrogression* begins. The tubercles shrink in size, crusts fall off and are replaced by small adherent scales covering a dry surface; the color of the lesions grows darker and the border lighter as involution goes gradually on, until finally, in eight weeks to as many months after the beginning of the disease, only a dark spot remains to mark the site for a time, to in turn disappear. Occasionally the growths may ulcerate and the destructive process extend into the surrounding tissues, resulting in scars; rarely, too, the bones of the hands or feet may be involved and deformity result.

Sometimes variations in the manifestations of the lesions are seen. Crocker has given the name "ringworm yaws" to ring-like patches formed by a coalescence of lesions around the mucous outlets. Among the native laboring class ulcers may form on the hands and feet. These may spread irregularly and protrude somewhat like the shape of a crab and so have been called "crab yaws."

The sites of predilection for yaws are given as at or about the outlets of the body and other parts exposed to injury.

ETIOLOGY AND PATHOLOGY.—A tropical climate is apparently an essential

condition for the development of this disease. The colored race are most subject to it, and while it may occur at any age, children are more commonly attacked. It is probably always due to inoculation in some abrasion of the skin, and one attack is usually protective against further inoculation. The specific virus or microbe which is believed to cause this disease is described by Pieriez as a rod-shaped *bacillus*, occurring singly, in couplets or triplets. It may be cultivated in nutrient jelly, and has produced by transference the disease not only on the skin of man but also upon that of the lower animals, especially the cat.

The *pathological* changes induced by the presence of the poison in the skin are somewhat like those of syphilis, but according to Unna more simple in construction. In brief, the changes consist of a cellular infiltration in the cutis, hypertrophic elongation of the papillæ to ten or twenty times their normal length, overgrowth and hyperkeratosis of the epidermic cells. The latter produces the hardness and dryness of the surface of the lesion. When the crust is removed the prominent papillæ covered only with a thin layer of prickly cells gives the raspberry-like appearance to the tumor.

DIAGNOSIS.—The limitation of this affection to tropical regions, the peculiar evolution of its lesions, duration, etc., clearly distinguish it from other cutaneous diseases. The supposition that it closely resembles *syphilis* in nature or lesions is denied by those who have had opportunity to observe both diseases in detail. Daniels, from observation of the disease in Fiji, says: "The eruption has no resemblance to primary or secondary syphilis, and shows none of the associated lesions, and if considered as a tertiary manifestation there are neither primary nor secondary stages, for throughout it shows lesions of exactly the same character." The early lesion of yaws is not indurated like a chancre, does not tend to become phagedenic and is rarely genital. In the next stage it is not symmetrical or polymorphous like secondary syphilis, and the mucous membranes are never affected until later, sometimes years after. It is said, however, that syphilis and yaws often coexist in the same persons in countries where the latter is endemic.

Verruga, an epidemic disease occurring in the valleys of the Peruvian Andes, would scarcely be confounded with yaws. The former is characterized by a polymorphous eruption, pronounced anæmia, stiffening of the joints, muscular pains and spasms, and is often fatal. *Psoriasis* and *eczema* might be mistaken for yaws or vice versa, but the peculiarities of each are distinctive.

PROGNOSIS is favorable except in infants and debilitated subjects.

TREATMENT.—This should be based upon the indications as they arise. The hygienic and sanitary conditions of and around the patient should be made as perfect as possible, by attention to diet, ventilation, bathing, etc.

Locally, owing to the inoculability of the disease, cleanliness is important and antiseptic protective dressings are indicated when the lesions are few or grouped together. Corrosive sublimate soap ought to be well adapted for systematic bathing, and it is quite possible that painting the smaller lesions with salicylic acid or iodized collodion might arrest their development as well as

afford a protective covering. If ulcers form they should be treated like other contagious sores, dusted over with antiseptic powders, like boric acid, iodoform, aristol, etc., or ointments of the same, and covered with absorbent cotton or gauze.

There is very little data from which to estimate the value of internal treatment, but the pathogenesis of the disease is not without indications for such drugs as *Merc. biniod.* and *Nit. acid.*

EQUINIA

(*Glanders; Farcy; Mœilus.*)

DEFINITION.—A rare, acute or chronic contagious disease attended with constitutional disturbances and lesions of the skin and mucous membranes, due to inoculation with a specific virus derived from a horse or other equine animal affected with glanders or farcy.

SYMPTOMS.—Following accidental infection, through some abrasion of the skin or through the sound mucous membrane, there is a variable period of incubation of from three days to as many weeks. At the end of this period vague general symptoms of a rheumatoid character appear, such as mild fever, prostration, pains in the extremities, constipation, etc. After a time chills or rigors may make an increase of febrile disturbance, with profuse perspirations and diarrhoea; when the attack is severe a typhoid or pyæmic condition may develop and terminate in death in a few days.

Meanwhile at the point of inoculation the skin becomes painful, red and tense, and a chancroidal-like ulcer forms with or without the previous appearance of a papule or pustule. The ulcer spreads by an undermining process at its edge, looks foul, often gives rise to an offensive discharge and is soon attended with swelling of the neighboring lymphatic glands and often with lymphangitis. Sometimes more or less extensive phlegmonous inflammation may characterize the primary process, with the later appearance of pustules and ulcers at various points on the surface. If the entrance of the poison occurs through a mucous membrane catarrhal symptoms appear, followed by those of ulceration, with a purulent, sanious and offensive discharge. The nasal mucous membrane is commonly the part attacked, and the soft parts may be destroyed and the bones perforated. The disease may begin on other mucous surfaces or may extend to them from the nose with corresponding symptoms. Even when the inoculation takes place through the skin the mucous membranes become affected later in most acute or sub-acute cases.

The more characteristic skin eruptions of equinia arise irrespective of the point of inoculation, and may appear at any time from two days to a month after the development of the early symptoms. They begin under the epidermis in groups of red spots, which soon become shot-like papules, and as they change to yellow look like the lesions of smallpox, but are not umbilicated. These

may merge together, break down and form superficial, ragged, dirty ulcers, or sometimes dry, gangrenous patches. Deeper and larger nodules may appear at points distant from the primary infection and are sometimes connected by swollen lymphatics. These glandular enlargements may reach the size of a walnut; in the horse they constitute the "farcy buds," which may be numerous, and if they do not resolve, break down into deep and foul ulcers. In some acute cases these eruptions do not develop owing to the rapidly fatal course of the disease; in chronic cases they are not numerous or of rapid development, corresponding with the more moderate constitutional symptoms. The average duration of chronic cases is five or six months, but it may be much longer in exceptional instances, and rarely the acute form may supplant the chronic at any time in its course.

ETIOLOGY AND PATHOLOGY.—Glanders in man is limited almost exclusively to those male adults who have to do with horses, very few cases having been known to occur by transmission from man to man, woman or child. The mode of contagion is probably nearly always direct, from the contaminated secretions of the animal coming in contact with an abrasion of the skin or the unguarded mucous membrane.

The *pathological* cause is known to be the *glanders-bacillus* (*bacillus-mallei*), which has produced the disease from culture inoculations. This microbe is about the size of the tubercle bacillus, broader, but somewhat shorter, and is easily stained with methylene blue. It is found in the discharges from the lesions of glanders and may retain its vitality for some time in a dry state, but is destroyed at a temperature of 135° F., and by ordinary antiparasitics. The presence of the bacilli or their products in the human tissues causes a dense infiltration of embryonic cells in the corium, very like the process in tuberculosis. Infection spreads along the lymph-vessels, and bacilli may enter the blood-vessels and be carried to other near or distant parts of the body. Extensive or numerous foci may finally induce a condition akin to pyæmia. The bacilli are abundant in all the skin lesions, blood and brain tissue.

DIAGNOSIS.—When equinia is suspected from the history of a case an inquiry should always be made regarding the occupation of the patient, and, if this clue of its origin is lacking, a microscopic examination of the discharges should be made for the specific bacillus. When the general, cutaneous, lymphatic and mucous membrane symptoms have appeared little difficulty will be found in making a diagnosis.

The **PROGNOSIS** is grave in proportion to the acuteness of the attack. Most acute cases are fatal, and about one-half of the chronic ones finally die from the disease.

TREATMENT.—Preventive treatment consists in the immediate killing, disinfection and burial of animals affected with glanders; thorough sterilization and protection of abrasions or wounds happening to those caring for suspected animals, and the early excision and antisepsis of the skin at any point where inoculation is suspected to have taken place. After the development of the disease the patient should receive physiological treatment to put him in the

best condition to resist the disease; strict local antiseptic dressing of open lesions, and the indicated remedy. One case of the editor's involving both hands and arms with extensive lymphangitis improved markedly while treated locally with constant applications of a ten per cent. solution of *creolin* in glycerine. It has been reported that a *toxine* (mallein) of the bacillus, injected subcutaneously, gave favorable results.

ERYSIPELAS

(*St. Anthony's fire; Ignis sacer; Rose; Wildfire.*)

DEFINITION.—An infectious inflammation of the skin and contiguous mucous membranes, attended with febrile and other systemic disturbances, characterized always by redness which tends to spread, frequently by the development of vesicles, blebs and pustules, less often by diffuse suppuration and gangrene.

SYMPTOMS.—The special features of surgical erysipelas need not be taken up here. It being generally admitted that the efficient cause of erysipelas is always the same, the former division into idiopathic and traumatic is no longer important or necessary.

The *general* symptoms often begin with a sense of malaise and prostration, and are followed in a day or so by chills, vomiting, etc. Sometimes these are mild or wanting and fever marks the onset as well as the course of the disease. The temperature varies from 101-106 and is persistent, with an evening rise and morning remission except in the mildest cases when it may nearly subside after a few hours or days. A rise of fever usually indicates an extension of the disease, and a fall an arrest or subsidence of the inflammation. The pulse is quickened usually in proportion to the degree of fever, and its other qualities vary not alone from the intensity and extent of the disease, but also from the previous condition of the patient due to habits or disease. Headache is often a prominent symptom, and drowsiness and delirium are not uncommon, especially when the attack is located on the head.

Within a few hours to a day after the general symptoms begin *local* signs of erysipelas appear at the point of infection. This is at first a small distinctly red, shiny, swollen, irregular and sharply defined spot. The color disappears on pressure except a yellowish tinge, but the redness returns quickly on removal of the finger; sometimes the color is violaceous or livid. The part is painful on pressure, hot and tense to touch, but the amount of swelling varies widely with the region affected, being greatest where the areolar tissue is abundant and loose, and least where it is moderate and firm. On the face erysipelas often completely closes the eyes from swelling of the tissues about them, while on the scalp it may cause only slight elevation. As a patch of erysipelas enlarges more or less rapidly it preserves its sharply defined border against the sound skin. It may spread at all or several points or chiefly in one direction; some-

times it is very erratic in its march, advancing first at one part of the periphery and again at another, or again by apparent metastasis to another region. The extent of surface finally involved may be comparatively small or large; involution often goes on in the older portions as new areas are invaded. Rarely the entire body may be progressively visited in this way (*erysipelas ambulans*), and even a second time in the same manner.

Erysipelas may run its *course* without developing other lesions, but when the process is intense enough the pressure of exudation in the epidermis may rise to the surface in vesicles or bullæ. The contents of these may become purulent and then dry into crusts. Prolonged and intense compression of the capillaries of the skin may induce gangrene, especially of dependent parts. Red streaks along the skin show the involvement of the lymphatics, and the enlarged glands may suppurate, or furunculous-like abscesses may form in severe cases.

The most common *location* of erysipelas is on the head or face, but no portion of the skin is immune to the disease. When the scalp is involved symptomatic alopecia follows during convalescence, later the growth of hair is generally renewed again. Repeated attacks of erysipelas in the same place may lead to permanent changes in the skin, such as elephantiasic conditions of the legs and thickening of the skin of the face, ears, lips, etc.

The *point* of origin of the disease appears to be often about the nose, probably because the skin and mucous membrane are frequently slightly abraded by the nails, and the fingers so commonly touch these parts, but in the majority of cases no injury of the surface is discoverable. The inflammation is liable to spread from the nose into the mouth and throat, or beginning at some point in the mucous structures it may extend on to the skin. The affected mucous membrane is swollen, dry, glazed, and over the tongue may be fissured; excessive secretion of saliva is sometimes noted. When the pharynx is invaded deglutition is painful, and cedema of the glottis may arise as a dangerous complication.

The *duration* of erysipelas varies from one to three weeks and exhibits all grades of severity. Sometimes it runs a very mild course, with slight fever and little general disturbance of the system; at the other extreme, particularly in old people, alcoholics, and in persons suffering from nephritis and diabetes, prostration is often an early feature, and delirium, drowsiness or coma may soon mark the gravity of the attack. Serous effusions into the lungs or brain may hasten the closing scene in fatal cases. Milder attacks may be prolonged by recurrences in the same or other portions of the surface.

Local recovery is indicated by a subsidence of the heat, swelling and redness, but involution is generally slow and may be interrupted by a renewal of the disease in some degree or by complicating boils or abscesses.

ETIOLOGY AND PATHOLOGY.—It is generally believed that the disease arises from local infection through some break in the continuity of the skin or mucous membrane, however minute. Hence, any lesion of the surface may afford a starting point for erysipelas. Larger wounds from traumatism

and surgical operations are most readily infected and favor the assumption that no special condition of the tissues other than exposure is necessary to permit infection with the poisonous element of the disease. Lowered or perverted nutrition from intemperance and other habits or from disease, exposure to cold and chronic cutaneous disease may be said to be predisposing causes. One attack apparently predisposes to another, either from latent foci or from greatly diminished resistance of the tissues.

The efficient or *pathological* cause of erysipelas is conceded by most authorities to be a specific *streptococcus* described by Fehleisen in 1882. This organism gains an entrance into the tissues directly or indirectly, there multiplies and produces products which give rise to the characteristic inflammation, systemic fever, etc. The streptococci have been found in the lymph vessels of the skin down into the subcutaneous layer, and both the venous capillaries and lymphatic vessels and lymph-spaces are enormously dilated. They are brought into view by staining a section of tissue with methyl-violet, and then may be seen under the microscope in chains of two or more and bunched together. Staphylococci are also claimed as a cause.

The type of inflammation excited by these micro-organisms is *sero-fibrinous*, implicating chiefly the deeper portion of the corium and extending into the subcutaneous tissue. The exudation into the latter structure accounts largely for the induration always felt and its slow absorption during involution, while the more permanent thickening of the skin which sometimes follows recurrent attacks is explained by the progressive conversion of wandering cells (by fibrillary union) into connective tissue, finally reaching elephantiasic enlargement. The epidermis is penetrated and sometimes lifted up by the exudation; vesicles or bullæ form deeply at or below the base of the granular layer; and the hair follicles may be penetrated and the sheaths dissected from the roots, resulting in loss of the hair.

DIAGNOSIS.—Due attention to the history of an attack will seldom fail to show the diagnostic symptoms of erysipelas. The early chills and consecutive fever which usually continues, the red, swollen and abruptly defined patch spreading more or less steadily in a regular or irregular manner are sufficiently characteristic. It is possible, however, to confuse the disease with acute eczema, erythema and giant urticaria.

Eczema is not attended with systemic fever except in young children, who are not likely to be attacked with erysipelas; the eczematous patch is not as swollen, bright red or sharply defined as in erysipelas; vesicles which form on the surface are minute, thickly set and perhaps more perceptible to touch than to sight; often the surface is dry and scaly, and the whole process is attended, as a rule, with marked sensations of itching.

Erythema is of short duration; unattended with fever, or any tendency to creep out over the surface; the redness disappears wholly on pressure without leaving a yellowish stain, but quickly returns when pressure is removed. *Urticaria* is ephemeral in character; not attended with marked systemic disturbance; nearly always shows the characteristic wheals or a history

of their occurrence, without tenderness, but with pronounced sensations of itching or stinging; and very often signs of digestive or other internal disturbances of function.

PROGNOSIS.—Uncomplicated cases of erysipelas commonly recover. Following obvious traumatisms from accidents, surgical operations, labor, etc., the probabilities are less favorable. When the disease attacks the umbilicus of the new-born it is said to be commonly fatal. Old age and a long duration of the attack are looked upon as obstacles to recovery. Existing disease and complicating conditions arising in the course of erysipelas may materially diminish the prospects of cure and prolong its duration.

TREATMENT.—Inasmuch as the microbe of erysipelas carries on its work deep in the tissues of the skin, no local measures of treatment are demanded other than absolute cleanliness and those which afford protection to the skin and comfort to the patient. The parts may be washed with a 1 to 3,000 *bichloride solution*, and cloths, made to fit over the region affected, may be wet with this or with a dilution of the same drug which is administered internally, or with dilute *calendula*, *hamamelis*, or *alcohol*. These give local comfort, but probably do not shorten the course of the disease to an appreciable extent. For cure we must rely on sustaining physiological treatment and the indicated drug. The diet should be nourishing in proportion to the prostration or danger therefrom in each patient; and alcoholic stimulants may be needed for a time in grave cases. Quiet and isolation are essential provisions for the patient's welfare; rules of cleanliness should be enforced to prevent possible auto-infection and the transmission of the disease to others. In this connection the liability of nurses and physicians conveying the poison to other patients, especially surgical and puerperal cases, should never be forgotten.

The treatment of erysipelas with drugs administered internally may be viewed with considerable confidence. Observation of a large number of cases in hospital and private practice leads the author to believe their value is underestimated, and that the disease is not only modified in intensity and course, but the rate of mortality minimized by their judicious employment. The number of drugs likely to be indicated is not large and their sphere of action comparatively well known. Look particularly at the indications for *Apis*, *Arn.*, *Arsen.*, *Bell.*, *Canth.*, *Crotal.*, *Euphor.*, *Lach.*, *Rhus tox.*, and *Vipera*.

ERYSIPELOID

An efflorescence on the skin resembling erysipelas somewhat, but probably most often looked upon as an erythema, was first named erysipeloid by Rosenbach. It is believed to be due to the inoculation of some slight wound with decaying animal matter, and occurs chiefly on the fingers of cooks, fish dealers, butchers, or those habitually handling the flesh of animals. It

begins at the point of poisoning as a dark red or livid papule, and then spreads therefrom as a sharply defined erythema, which, as it clears in the central portion, may assume circular or festooned patches. It may creep over the surface in one or more directions, is attended throughout its whole course with pronounced burning or itching sensations, and ceases spontaneously in one to five weeks.

PATHOLOGY.—Rosenbach holds that the efficient cause is a micro-organism of the order cladothrix, existing in putrid flesh or cheese. He claims to have induced the disease from pure cultures of the organism. However, other observers do not verify this statement.

DIAGNOSIS.—The absence of constitutional symptoms may differentiate erysipeloid from *erysipelas*. *Dermatitis repens*, *erythema multiforme* and *ringworm* may need to be considered.

TREATMENT.—The local application of a weak solution of *formalin* or *permanganate of potassium* or a weak ointment of *resorcin*, *ichthyol* or *ammoniated mercury*, will hasten resolution. *Arnica* might be indicated internally.



MOLLUSCUM

...fty who has never been very strong,
...in childhood and have gradually multi-
...essile and pedunculated tumors, varying
...most numerous on the trunk, though no
...ms and soles. The largest growth is
...crest of the left hip, and on which the



MAMMA PENDULUM

Twenty years. Tumor has slowly
enlarged, painless and hard. (Cour-

CLASS VI.—NEW GROWTHS—NEOPLASMATA

This group comprises a list of diseases characterized by a more or less pronounced infiltration or growth of new elements in the skin and some whose etiology is not clear enough to justify a place among any of the preceding classes. For instance, more complete knowledge of the etiology and pathology of Acromegaly, Colloid Degeneration of the Skin, Lupus Erythematosus, Veruga and Myxoedema will probably place them more appropriately in other groups.

New growths may be naturally divided: (1) According to their structure into connective tissue tumors and epithelial tumors; (2) according to their nature into benign and malignant. Combining these distinctions four groups may be found as follows: (A) Benign Connective Tissue Growths. (B) Benign Epithelial Growths. (C) Malignant Epithelial Growths. (D) Malignant Connective Tissue Growths.

A. BENIGN CONNECTIVE TISSUE GROWTHS

FIBROMA AND NEUROFIBROMA

(*Fibroma molluscum*; *Molluscum simplex*; *Molluscum pendulum*.)

Fibroma is a new growth, consisting of fibrous connective tissue.

True fibroma of the skin (fibroma durum, desmoid hard fibroma) is not a common tumor. It is usually single and appears as a firm, slowly growing nodule, of small size and movable with the skin. The tumor is usually painless and does not recur after removal. In its histological structure, the true fibroma resembles the dense fibrous tissue of the cutis vera, with broad bands of fibres and few corpuscles of any kind. No elastic fibres have been demonstrated in the new tissue.

The multiple tumors that are usually called *fibroma molluscum* or soft fibromata have been shown by Von Recklinghausen to be, in reality, neurofibromata; that is, fibrous tissue tumors that grow from the connective tissue sheaths of the cutaneous nerves, usually at the peripheral end of the nerve. The minute structure of these neurofibromata differs from that of true fibroma in being composed of loosely woven fibres entangling multitudes of round and spindle cells. The abundance of cells may give the tumor a close resemblance to sarcoma.

Clinically, the *fibroma molluscum* or neurofibroma appears in the form of one or more nodules intermediate in consistence between the flabby soft-

ness of a lipoma and the firmness of a true fibroma or a myoma. The tumors vary in size from a hempseed to a cherry, may enlarge slowly or rapidly, and sometimes reach an enormous size; they may remain stationary after attaining a certain variable size, either sessile or become pedunculated. On careful palpation, there are often found, at the base of the tumor, several hard cords or roots; these represent the thickened nerve trunks from the branches of which the tumor has grown. Neurofibromata are nearly always multiple; there may be hundreds of sessile and polypoid growths covering almost the whole surface of the body. Neurofibromata are usually painless; exceptionally, pain will be acute from pressure on some nerve. The tumors are benign, persist throughout life and they are apt to recur after excision. They do not appear to affect the general health, except through mental annoyance at their presence, or from mechanical discomfort when large.

Dermatolysis (fibroma pendulum; lax or relaxed skin) is a condition which is usually congenital or secondary to fibroma. The skin in such cases may be gathered up in flaps between the fingers and is thickened, of a natural hue or pigmented in color, and usually possesses the normal functions of skin. It is always limited in extent and favors the face, neck, chest, abdomen or genital region. This condition of relaxed skin should be differentiated from those forms due to senility, or to distension after the presence of tumors or pregnancy.

The ETIOLOGY of these growths is not known. They have been attributed to hereditary influence from their occasional appearance in several members of the same family or in successive generations. Some degree of mental or physical weakness has often been noticed in these patients. The tumors may develop at any age and are sometimes present at birth. In this country, the negroes furnish the largest number of cases.

DIAGNOSIS.—The slow growth, number, isolation, unchanged color and consistency of fibromata, and the absence of constitutional symptoms make their recognition easy.

From *molluscum contagiosum* they may be distinguished by being of the same color as the skin, by the absence of umbilication, deeper attachment in the skin, and usually greater number. From *lipomata* by their non-lobulated character, by being pedunculated and less flat. From *neuromata* by the absence of pain; from *papillomata* by their smooth surface; and from *multiple sarcomata* by their slow growth, absence of redness and any tendency to break down. *Sebaceous* tumors (wen) are rarely numerous, not pedunculated and their contents can often be expressed by first dilating the mouth of the follicle, unlike the solid fibromata.

PROGNOSIS AND TREATMENT.—There is probably no cure known for well developed fibroma molluscum. That cure is possible is perhaps indicated by rare instances of spontaneous involution. In the incipient or early stage remedies known to act on connective tissue or indicated by existing constitutional conditions may be given. Hard fibromata may be *excised* and are not likely to return. Neurofibromata may also be excised when so situated or large

enough to give annoyance; or *electrolysis* may be employed to destroy them when not too large. But, however removed, they are likely to return. Among possible remedies see *Calc. fluor.*, *Graph.*, *Lycopodium*.

KELOID

(*Cheloid*; *Kelis*.)

Keloid is a new growth of the skin composed of dense fibrous tissue which has its seat in the corium. It differs from fibroma in its peculiar appearance and its persistency. The peculiar appearance of keloid is the principal diagnostic feature. It consists of an elevated variously shaped patch or ridge of skin, the surface of which is tense, smooth and shining and of a pearly or rosy tint. At one or both ends of the ridge there may be several fleshy prongs that blend gradually with the surrounding skin. The growth is found most often over the sternum, chest and neck, but may appear on any part of the surface. As a rule, keloid occurs only after some injury to the skin. Some dermatologists distinguish between "spontaneous keloid" and "keloid following injury," but it is probable that all keloids develop after some injury, however slight, as simple scratching of the skin. It is usually a single growth, but may be multiple, and also vary greatly in size and shape. When excised keloid nearly always recurs. It is a benign tumor and never threatens life, though it may be the seat of considerable pain.

Around a healing or healed wound there sometimes develops a mass of fibrous tissue that is called "false keloid" or "*hypertrophic scar*." It differs from true keloid in the fact that it often disappears spontaneously and never recurs after removal.

ETIOLOGY.—The cause of keloid is not known. It is seen in both sexes and most often in the middle period of life; cases, however, have been observed at nearly all times of life. The dark skinned races are more subject to the disease, and many cases have been traced to slight injuries. It is probable that some cases may in the future be considered as examples of cutaneous paratuberculosis, since the disease is more common in a race prone to general tuberculosis and since the lesions often recur after excision and may present a marked lupoid character.

DIAGNOSIS.—The ridge-like shape, smooth surface, pinkish color and history of occurrence will nearly always serve to distinguish keloid from all other growths. A *hypertrophic scar* might approach it in appearance, but a history of a wound at the exact site of the lesion, lighter color, less elevation and absence of pain common to cicatrices will readily differentiate the latter from the former.

PROGNOSIS.—A keloid may disappear spontaneously, but usually persists indefinitely though the patient's general health is not affected.

TREATMENT.—While *radiotherapy* has given satisfactory results in a few keloids only, it has been distinctly successful in the treatment of hypertrophic scars. *High frequency currents* (Oudin resonator) have been of benefit in a larger proportion of cases of keloid than the Röntgen-rays.

Excision and *cauterization* are of no avail because the growths return. Vidal has employed *multiple linear scarifications* with success. The tumors may be destroyed by *electrolysis*, but this and other operative measures are only justified when the growths are conspicuous in location, very painful or interfere with some function. Among drugs see *Cal. fluor.*, *Fluor. acid*, *Graph.* and *Nit. acid*. Hypertrophic scars have responded to internal medication, so there is reason to believe that a keloid, especially if it has not reached the height of evolution, may be influenced. Crocker, Neisser and others report good results from injections into the growths of ten to twenty minims of a ten per cent. solution of *thiosinamin* in equal parts of water and glycerine or in alcohol.

CICATRIX

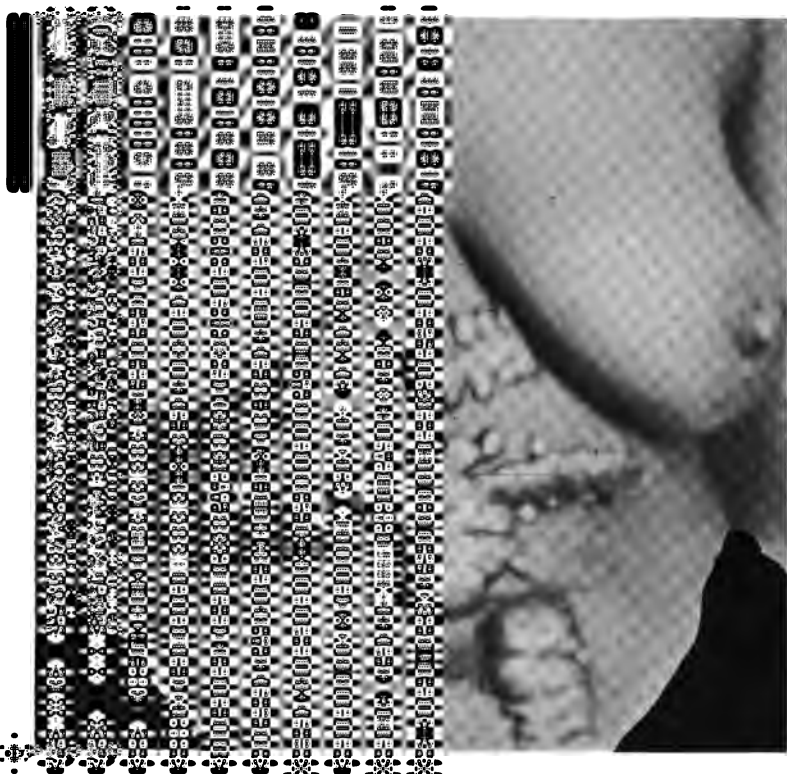
Cicatrix or scar is a new growth of dense fibrous tissue that forms in the process of healing by second intention. The new formation is covered with epithelium similar to that covering the normal skin, except that it has not the intricate and minute surface markings. The surface of the scar is smooth or only coarsely marked. Its color is, at first, pink, owing to the abundance of blood-vessels and the thinness of the epidermic covering. All scars have a strong tendency to shrink, and from the consequent obliteration of many of the blood-vessels the color of the scar gradually changes to the shining whiteness of dense fibrous tissue. In old scars considerable pigment may be deposited. In its contraction, a cicatrix may produce a marked deformity, but it is seldom the seat of any pain.

Eruptions attended by slight loss of substance of the cutis, as the pustules of variola, sycosis or acne, may be followed by thin, depressed scars or "pock-marks."

Certain skin lesions, as lupus erythematosus, are followed by an atrophy of the cutis that, superficially, resembles a scar. The surface is depressed and white, but the lesion is quite superficial and lacks the toughness of a true cicatrix.

ETIOLOGY.—Scars are always the result of injury or disease, and correspond in a large degree in shape and depth to the gaps left in the surface after treatment of wounds, or from losses of tissues from diseased processes. Scars may therefore be regular or irregular in shape, small or large, flat, elevated or depressed. Deep scars are permanent, though they may shrink to smaller dimensions. Small superficial scars may in time almost disappear, leaving only delicate lines or dots. Scars from burns are apt to contract and form uncomfortable or disfiguring constrictions.

PATHOLOGY.—The development of a scar is that of all fibrous tissue. The



FLOID

... years. Duration of disease, ten years. ... with intense itching. This lesion ... ts, abdomen and back, making twenty- ... and pain at times severe. X-ray treat- ... diminish the size of the growths.



24.—CICATRIX

Burned by scalding water. It was necessary to use the Thiersch method, which was done by Dr. A. H. The parts of *electrozone* were used to prepare the parts shown in the illustration.

wound or ulcer is gradually filled in with a soft, red, granular flesh known as granulation tissue. Granulation tissue is composed of loops of blood capillaries surrounded by multitudes of round cells. As the granulation tissue increases, the lower layers are successively converted into fibrous tissue. When this growth reaches the surface of the wound, the surrounding epithelia proliferate and grow inward over the new fibrous tissue. The advancing epithelia are recognized as a circle of bluish-white "skin" around the margin of the wound. The upper layers of the cicatrix develop into a papillary body, with short, irregular papillæ. The cicatrix contains no glands, follicles or fat tissue; but, in several instances, Unna has found newly grown elastic tissue in a scar.

DIAGNOSTIC SIGNIFICANCE OF SCARS.—The nature of the previous pathological process may sometimes be surmised by the appearance of cicatrices. *Scrofulous* ulcerations of the skin usually leave disfiguring, linear or irregular, and often extensive scars. *Lupus* cicatrices may also be irregular or uneven and disfiguring, though usually they are superficial. The scars from *syphilis* are often delicate and smooth, slightly depressed, sharply defined, but vary in shape, depth and extent, and for a time they have a reddish pigmentation, which is characteristic.

TREATMENT.—Scar formations may be in a measure controlled by indicated drugs, by *skin grafting*, by reducing too exuberant granulations with *caustics*, and sometimes in the more extensive formations by *surgical* measures to prevent adhesions and contractions. After cicatrization is complete scars seldom require treatment; when hypertrophic they may be made sometimes to undergo a partial involution by internal medication. Small superficial scars are said by Heitzmann to be greatly improved by the long and frequent internal use of oil, such as castor or cottonseed, in doses of three to twelve drops. *Radiotherapy* by absorption of the scar tissue, has produced a softer, thinner and smoother scar than the original. Injections of *thiosinamin* have been used as detailed under keloid. Among drugs believed to act on scar tissue see *Cal. fluor.*, *Fluor. acid*, and *Graphites*.

XANTHOMA AND XANTHOMA DIABETICORUM

(*Xanthelasma*; *Fibroma lipomatodes*; *Vitiligoidea*.)

Xanthoma is a new growth consisting of opaque, yellowish plaques or flattened nodules. They are most commonly seen upon or around the eyelids. The growth is painless and of about the same consistence as the surrounding skin. Both the yellow color and the opacity are due to the multitude of fat granules that are contained in the tumor, which otherwise consists of fibrous tissues, blood-vessels and a variable number of connective tissue cells.

Xanthomata were formerly divided into several varieties according to the form of the lesion, as *xanthoma planum*, indicating the plaques; *xanthoma*

tuberculosum, the nodular form; and *xanthoma tuberosum*, a rare variety in which the nodules attain the size of a hen's egg or larger. The xanthoma of diabetics (*xanthoma diabeticorum*) formed another and irregular variety. A better classification is that of Unna, who distinguishes a xanthoma of the eyelids and a generalized xanthoma; the first being of very slow growth and strictly localized to the eyelids and their neighborhood, the second form being a generalized eruption that appears rapidly. The generalized xanthoma is more apt to be of the nodular form, and the lesions are at first more red and sensitive than the dull yellow plaques of the eyelids; but they still have the peculiar opacity that allies them clinically with the latter. Generalized xanthoma selects especially the elbows and knees, but in some cases it has been observed to appear not only on other parts of the skin but also upon the mucous membranes, the serous membranes and even the intima of the blood-vessels. As a rule, the eyelids escape. Having appeared, the eruption takes on a chronic character, lasting for months or years. In time the lesions slowly disappear, leaving no mark of their former location.

ETIOLOGY.—Generalized xanthoma not only may occur in the course of diabetes, but also may accompany or follow jaundice or other hepatic diseases, gout, rheumatism, syphilis, carcinoma, ovarian disease, hydatids and other conditions. On the other hand, it may occur in apparently healthy subjects. The causes are obscure although some observers believe it is due to embryonic and local conditions. Hereditary tendency has been noted in some cases.

PATHOLOGY.—Much has been written of the groups of "xanthoma corpuscles" which are imbedded in the fibrous tissue of the xanthoma lesion. Unna declares that these structures are simply dilated lymph capillaries, distended with coagulated lymph. The fatty degeneration of the lymph coagulum furnishes the characteristic masses of fat granules. In the nodule of generalized xanthoma there is an entirely different condition. Here there are present groups of true connective tissue cells, the centres of which have undergone fatty degeneration. Xanthoma lesions are also found in the heart, large veins and arteries, liver, spleen, cesophagus and trachea.

The **PROGNOSIS** of xanthoma of the eyelids is good, in that life is not endangered. The growth is perfectly benign and the lesions may disappear spontaneously. The same may be said of generalized xanthoma, except that the ultimate prognosis will depend upon the nature of the complicating disease if any exist.

The **DIAGNOSIS** of xanthoma of the eyelids is easy. *Milium* is the only affection that could be mistaken for the former. Milia are rarely larger than a pin's head, and on puncturing the epidermis over one its contents can be easily pressed out. Xanthoma lesions are often much larger, and on puncture only blood and serum can be forced out by pressure.

Generalized xanthoma is readily distinguished by its more acute development, signs of inflammation and reddish color at first, solid and often nodular lesions, and in some cases by its occurrence in the course of diabetes or other diseases.

TREATMENT.—If radical treatment is sought by the patient the smaller lesions of the eyelids may be excised with scissors or destroyed by *electrolysis*; when the growths are completely removed they are not likely to return. Caustics have been employed, but are not to be recommended. A ten per cent. solution of *corrosive sublimate* in collodion painted over the growths has been found effective. A better method for larger patches, and first mentioned by Morrow, is the application of a twenty-five per cent. *salicylic acid* plaster, which is worn several successive days. The epidermis is disintegrated by the acid, and when the plaster is removed brings away some of the growth with it; other parts are found softened and may be lifted out with a curette.

When the patient is not urgent for the speedy removal of xanthoma growths internal treatment by indicated drugs is not without hope. Special indications are to be sought for before selecting a drug remedy. *Calc. fluor.* and other tissue remedies should be studied. The treatment of xanthoma diabeticorum is that of glycosuria.

LIPOMA

(*Fatty tumor.*)

Lipoma is a new growth composed of fat tissue that resembles in general normal adipose. The tumor occurs rather in the subcutaneous tissue than in the skin itself. Unna's theory of its formation is that there is a local obliteration of the lymphatics resulting in a stagnation of the current of fat, which, normally, flows from the fat-producing glands of the skin to the cutaneous lymphatics and venous capillaries. The fat, being unable to escape by the lymphatics, accumulates in the connective tissue around the blood capillaries and veins, and distends this connective tissue to form the tumor. Lipomata are soft, flabby tumors, varying in size from a minute nodule to an immense mass weighing several pounds. The skin covering it is usually normal and movable, but may become thickened, reddened and adherent. The tumors are either single or multiple, and may grow anywhere on the skin surface; they are usually of slow growth, painless, and can be freely handled without discomfort. They do not recur after thorough removal.

These growths are not uncommon and are generally circumscribed; occasionally they occur as diffuse lobulated elevations of the skin, to which the name *leontiasis* has been given. They may appear at any time of life, but the circumscribed tumors are more often seen in adult women, while the diffuse form occurs almost exclusively in middle aged men. When combined with other congenital new growths, such as fibroma, myxoma, etc., fatty tumors have been called *nevus lipomatodes*. Occasionally a calcareous deposit takes place in fatty tumors and, rarely, they ossify; in many, if not most, cases they remain unchanged for a lifetime.

The **DIAGNOSIS** of lipoma is never difficult. The soft, lobulated, painless tumor, covered by the normal skin, is too characteristic to give room for error.

TREATMENT.—Non-interference is the rule unless some special reason exists for their removal. As the lymphatics are cut off from the growths, *excision* is probably the only effective mode of treatment. This is a simple procedure when the tumors are small, but may be difficult or unwarranted when they are very large or diffuse. *Baryta carb.* or *Baryta iod.* may be administered.

MYOMA

The myoma of the skin is a rather rare new growth composed of involuntary (non-striated) muscle fibres, with which there is always intermingled a quantity of fibrous connective tissue. When the connective tissue is abundant they constitute *myo-fibromata*; when new blood-vessels are large they form *angio-myoma*, or, when the lymphatics are involved, they are called *lymphangio-myoma*. The tumor is apt to occur in situations where involuntary muscle fibre is normally abundant, as the scrotum, the labia and the nipples. Occurring elsewhere in the skin, they grow from the minute strips of muscle fibre constituting the *erectores pilorum*.

The tumors appear as slowly growing nodules, pink in color and varying in size from a pin-head to a hazel-nut. They are firm to the touch and usually painless and insensitive, though the entangling and compression of the sensory nerve fibres in the slowly growing tumor may give rise to acute pain or cause the nodule to become very sensitive to touch. They may be either single or multiple, sessile or pedunculated; occur at any age, but are more common in advanced age and in females more often than in males. Myomata are benign, and, except in a few instances, they have not returned after removal.

The **DIAGNOSIS** of myomata is not always possible. Small, isolated, slowly growing tumors, without tendency to involve the glands or neighboring tissues or to ulcerate, and unattended with constitutional symptoms, are indications of myoma. But a positive diagnosis may require a microscopical examination of the growth.

TREATMENT.—This consists in *excision* if called for by pain or other suffering; or by remedies known to have an affinity for muscle tissue or are indicated by subjective symptoms. See *Cal. fluorica*.

NEUROMA

Strictly speaking, the term neuroma should be confined to new growths composed entirely or almost entirely of nerve fibres. Practically, the word has been used to indicate any benign tumor that grows on or in connection with a nerve trunk, or one which was associated with considerable pain. It is desirable to limit the meaning of the word to the true neuromata, which are almost always a consequence of an injury to the affected nerve. These tumors

may be only as large as a pin-head and rarely exceed the size of a hazel-nut, and are imbedded quite deeply in the true skin. They are composed of nerve fibres, principally of the medullated variety, with a certain amount of supporting elastic, connective and fibrous tissue. The neuromata are rare tumors, the best known being the "amputation neuromata" that grow from the nerve trunks in an amputation stump. The tumor is often, but not always, painful; in fact, pain and exquisite sensitiveness are the principal clinical features. These may be slight at first and slowly increase in severity for months or years, and the pain may assume a continuous or paroxysmal type.

Plexiform neuroma is a rare variety of neurofibroma in which the new fibrous formation develops a thickened and tortuous bunch of nerve cords instead of forming a distinct tumor. (See Neurofibroma.)

So-called *tubercular dolorosa subcutanea* consists of deeply seated nodules, mostly situated on the extremities, less often on the scrotum, face and breasts, and are sensitive to pressure. They are usually single, rarely multiple, and are most often seen in females in adult life. They grow very slowly, are movable under the skin and do not return if removed.

Neuroma may be single, or multiple and disseminated, in almost any region of the skin, but show a predilection for the extremities and buttocks.

ETIOLOGY.—The causes of neuroma probably include some predisposition and a local exciting irritation or slight traumatism. They may be present at birth or begin in childhood, but are more frequently seen in the active period of life—between the twentieth and fiftieth year. Sometimes they occur in two or more members of a family, seeming to show hereditary influence. Virchow thinks persons suffering from tuberculosis are particularly subject to the disease.

DIAGNOSIS.—Small, very slowly growing, partially movable, painful, sensitive and deeply seated growths in the skin are diagnostic of neuroma, but a positive exclusion of other growths cannot always be made without a histological examination of the tumor.

PROGNOSIS.—Neuromata do not endanger life, but when attended by severe pain may exhaust the nervous endurance in some degree. Usually the more painful growths can be removed and thus afford relief.

TREATMENT.—Other than *surgical* methods of relief may be of little avail, but a predisposition or some clue as to causation may point to an internal remedy, like *Cal. fluor* and *Fluor. acid*.

ANGIOMA

Under this head are included new growths composed of blood-vessels and of lymphatic vessels. The former occur in a number of clinical forms and are much more common. The latter will be considered under lymphangioma.

Nævus vasculosus (*nævus flammeus*; *nævus sanguineus*) includes those vascular growths which are congenital or develop shortly after birth and

appear as reddish or bluish discolorations of the skin, due to the presence of many dilated blood capillaries. On firm pressure the color disappears, returning immediately when the pressure is removed. These discolorations form the so-called *port-wine marks* or *mother's marks*. They are often multiple and occur on any part of the body, though most frequently observed on the face and neck. They may be very small or cover an extensive surface. The *nævus* is sometimes raised above the surrounding surface and may present one or more soft, compressible nodules. A peculiar form of this lesion is *nævus araneus* or *spider nævus*, which consists of a minute central red point from which slender red capillaries radiate in all directions.

Hæmatangioma.—The blood-capillary tumor or *hæmatangioma* sometimes appears as a nodule lying deep in the skin, slowly enlarging to the size of a hazel-nut. The overlying skin may be normal or purplish. Like simple angioma the tumor is compressible, resuming its original size rapidly when the pressure is removed. These growths are generally regarded as true *angiomata* as distinguished from *nævi*, and may consist of newly formed capillaries (*capillary angioma*), or of large, cavernous blood spaces (*cavernous angioma*). The tumor is benign; it may appear at any time of life and is usually single and painless, but pressure on the peripheral nerves may excite neuralgic pains and, when located on the head, pulsation or murmur of the tumor may be distressing at times.

Telangiectasis.—This lesion consists in a dilatation of the blood-capillaries, and is usually secondary to other known diseases. Telangiectasis is observed in its best development on the nose and cheeks of those affected by *rosacea*. The dilated capillaries appear as fine red lines that branch and interlace over the affected surface, or the dilated vessels may form small tubercles. The same capillary dilatation is sometimes found around a scar or in connection with *scleroderma* or other condensation of the skin.

Angioma serpiginisum (Infective angioma; *Nævus lupus*).—This is a peculiar and uncommon form of angioma that appears in the form of minute red specks arranged to form circles, or gyrate lines where several widening circles have coalesced. There first appears a group of red points, which slowly enlarges by the appearance of new spots at the periphery. As the lesion enlarges it clears in the centre, after the manner of a ringworm. From these characteristics *serpiginous angioma* is supposed to be infective in its nature and allied to *lupus erythematosus*. The minute changes consist in a localized dilatation of the capillaries of the papillary body. The lesions are usually multiple and appear indifferently on the trunk, head or limbs.

Angiokeratoma or *keratoangioma* is a rare eruption, consisting in the appearance of small translucent nodules of a red or bluish color and a warty or horny surface. The nodules are about the size of a pinhead and have occurred on the fingers, palms, soles, scrotum and ears. The lesions are formed by a capillary dilatation, with a thickening of the overlying epidermis. They seem to be often associated with the variety of dermatitis known as *chilblains*, and are probably due to the same cause. In a single case of my own,

situated on the scrotum, the patient was subject to cold hands and feet, but had never had chilblains. Fordyce has reported a similar case involving the scrotum, with the results of a histological study of the growths.

ETIOLOGY AND PATHOLOGY.—Little is known concerning the causes of angiomata. Vascular nævi are probably due to some congenital defect permitting an overgrowth of capillaries in the skin. Acquired dilatations of the blood-vessels may arise from long continued or frequently repeated hyperæmia of the skin, due to general or local conditions. When associated with other growths the capillary enlargement may be due to local obstructions of the circulation by the latter. No definite cause is known for the few cases so far reported of serpiginous angioma. Angiokeratoma has been attributed to cold and has been thought to be allied to chilblains, but the disease occurring on the scrotum proves that cold is not the only exciting factor. Anatomically the angiomata are due to dilatation and new formation of the venous and arterial capillaries in the upper portion of the derma associated with a new formation of connective tissue which constitutes the framework of the new growth.

DIAGNOSIS OF THE ANGIOMATA.—*Vascular nævi* can be recognized without difficulty. They may be distinguished from the acquired form, or *telangiectasis*, by their congenital history and the lack of visible capillaries except at the margin. The differentiation is not important. *Hæmatangiomatous* tumors are usually free from pain or sensitiveness; they disappear on pressure, but quickly refill as pressure is removed, and sometimes they pulsate. A *cavernous angioma* with a firm and dense capsule may be difficult to distinguish from a *fibroma*, but the latter is much more likely to be multiple. The dilated capillaries, single, interlaced or formed into tubercles, are pathognomonic of telangiectasis. The extremely rare *serpiginous angioma* can always be recognized by its peculiar clinical course. *Angiokeratoma* is distinguished by its minute red or purplish warty elevations, the color from which partly disappears on pressure, by its frequent association with chilblains and persistency without treatment.

PROGNOSIS.—The course of the angiomata is uncertain. Some congenital growths remain stationary, some diminish or disappear with age, others may pursue an opposite course and increase steadily in size or change from a flat birth-mark to tumor-like growths. The pulsating or cavernous angioma may be accidentally ruptured or ulcerate and alarming or fatal hemorrhage result. Telangiectases can be cured only by a removal of the causal conditions; they are not dangerous to life. Serpiginous angioma and angiokeratoma may last indefinitely without treatment, but they are probably attended with little or no danger of serious results.

TREATMENT.—The small vascular nævi in young children should not be meddled with locally other than occasionally painting them over with collodion, which produces slight compression on the vessels. These growths often disappear and may be assisted to do so by remedies to be mentioned later. If disfiguring or spreading, local methods may be employed early.

Electrolysis employed in the same manner as for the removal of super-

fluus hair is probably the most satisfactory method for the obliteration of flat vascular growths. A single needle or a number of needles, arranged in a holder in circles or rows, at least one-twelfth of an inch apart, may be used attached to the negative pole of a galvanic battery and inserted through the entire thickness of the skin. When carefully done, particularly with one needle, the resulting scars are not very conspicuous, or are much less so than the *nævus* sought to be removed; moreover the scars may become less apparent in time with the aid of internal remedies. The sittings can be repeated every few days, according to the effect, as many times as needed, until the growth is destroyed or rendered inconspicuous. Often it is wiser not to completely remove, but only to greatly modify the color of the mark. Sometimes capillary points reappear weeks later and need to be destroyed again.

When electrolysis is employed for the destruction of *hæmatangioma* the needle needs to be introduced obliquely under the tumor and sometimes out at the opposite side, or a gold or platinum needle may be attached to the positive pole and passed in obliquely in an opposite direction to the needle attached to the negative pole, both deep enough to strike the larger vessels supplying the growth.

For *telangiectasis* the needle need only be introduced just within the capillary to be destroyed and the circuit completed until the capillary becomes a white line, as first advised by Hardaway.

In *angioma serpiginosum* Crocker suggests the use of electrolysis to occlude the superficial blood-vessels in a line just beyond the advancing border of the disease. When desired the vascular dilatations of *angiokeratoma* may be destroyed by electrolysis in the same manner as for *telangiectasis*. For elevated *nævi* and cavernous *angioma* multiple puncture with a fine *galvano-cautery* needle at a red heat is sometimes used. No results can be determined until the inflammation fully subsides. The author has used in the same way a small shoemaker's awl, made red hot in an alcohol flame, effectively in one case.

Phototherapy has been used effectively in a few cases of vascular *nævi*. When a considerable area is involved or the supplying or composing vessels are not very distinct, this method would seem preferable to electrolysis.

Other local methods of treatment of the *angiomata* are usually less suited or less effective than electrolysis, and consist of excision, compression, cauterization, injections into the growths, vaccination, multiple scarifications, etc.

Excision is effective when made outside the line of growth, and is practicable for small *nævi* when the incised skin can be coapted, leaving only a linear scar. Cavernous *angioma* may also be excised, but the danger from hemorrhage is always possible.

Compression with an elastic bandage may be effective for flat or small elevated *nævi* when situated over a bone, affording counter pressure to the compress of cork or other substance placed over the growth. Care needs to be exercised as to the degree of pressure which can be borne without danger to the sound tissues covered by the elastic band as well as the skin over the growths.

Caustics are sometimes employed for the destruction of superficial nævi. For this purpose the freshly prepared ethylate of sodium may be applied with a glass rod to a small part of the patch at a time so as to produce the least scarring. The crust which forms should be allowed to separate spontaneously, while other portions of the growth receive applications at intervals sufficiently long to avoid exciting too much inflammation. Careful and even tattooing with a steel needle dipped in nitric or carbolic acid is sometimes efficient in partially obliterating superficial nævi.

Injections into these growths of alcohol, tannin, carbolic acid or other irritating substances, while effective in producing inflammation and occlusion of the blood-vessels, is always attended with danger of direct entrance into the circulation and fatal results therefrom.

Vaccination upon the site of a nævus is only practicable for the obliteration of small growths situated in unexposed parts. The local effects of vaccine inoculation are not under control, and the scar may be more unsightly than the birth-mark.

Among other methods which have been recommended, mention may be made of multiple scarifications made obliquely through the skin as advocated by Squire; subepidermic breaking up of the growth by passing a cataract needle through it in several directions from a single point of entrance as suggested by Marshall Hall; passing threads through the growth to excite inflammation and methods of strangulation of the vessels with hair-lip pins or ligatures. These are all inferior, less certain or more dangerous than other measures named, especially in comparison with electrolysis.

The *internal* treatment of the angiomas is uncertain in results, but there are drugs which seem to have a marked affinity for the capillaries, and have apparently proved curative in some cases of vascular nævus and for secondary telangiectasis. Among such drugs see indications for *Cal. fluor.*, *Cundurango* and *Lycopodium*.

LYMPHANGIOMA

(*Lymphangiectasis; Lymphorrhagica pachyderma.*)

Lymphangiomata are tumors composed of newly formed lymph vessels. Clinically, no sharp line can be drawn between lymphangioma and lymphangiectasis, the latter being a simple dilatation of the lymphatics. Simple lymphangiomata appear preferably about the face and neck as deep-seated and sometimes warty nodules of various sizes, rarely exceeding half an inch in diameter. The overlying skin is normal or pinkish, and though their walls are thick the nodules may have a translucent appearance. They occur in groups often with sound skin between the lesions. When punctured a drop of clear or turbid lymph exudes or the lymph may be mixed with blood, as a combination of blood and lymphangiomata is not uncommon. It is probable that most of these tumors are congenital and should be considered as

lymphatic nævi. They pursue a non-inflammatory chronic course, spread at the periphery, and are apt to recur if removed.

At times lymphangioma will form as a hazel-nut or walnut-sized subcutaneous tumor that, clinically, resembles a lipoma. When removed it is found to consist of a spongy tissue, which constitutes a cavernous lymphatic system.

Dilated lymphatics of the skin may be superficial or deep; when superficial the swellings may be agglomerated or isolated, very minute in size, up to a pea or larger. The deep varieties can sometimes be felt better than seen. Both varieties are apt to rupture sooner or later and discharge lymph. There are several peculiar varieties of lymphangioma that are more within the province of the surgeon than the dermatologist. These are *macroglossia*, or congenital enlargement of the anterior portion of the tongue; *macrocheilia*, a similar enlargement of the lip, and *hygroma calli*, a cystic formation on the neck, classed as a cystic lymphangioma, and probably is an immensely distended cavernous lymphangioma. Under the name of *lymphangioma tuberosum multiplex*, Kaposi reported a case of this disease which has since been shown to be a form of "multiple benign cystic epithelioma" (q. v.). Another lesion to which this name has been applied was described by Pospelow. There were small multiple nodules which, on incision, ejected a turbid fluid, some colloid substance and a drop of blood. The tumors were simply cavernous lymphangiomata of peculiar distribution. The term *lymphangioma circumscriptum* (lupus lymphaticus; lymphangiectodes) has been applied to a form in which the characteristic lesions are small, deep-seated, pin-head to pea-sized vesicles. These may be few or many, grouped or scattered, and are frequently surrounded by inflammatory areas. If the irritation be long continued or repeated, induration and thickening of the true skin may develop, causing a local elephantiasis.

ETIOLOGY.—The causes of lymphangioma and lymphangiectasis are not fully known. It is probable that most cases are due to congenital defects and began in infancy or childhood; some to local injuries or irritations, and others to obstruction of the cutaneous vessels from the products of various diseases. Why these factors produce disorders of the lymph structures in one instance and not in many similar cases is unsolved, but leads naturally to the supposition that the efficient cause is hidden. Affections of the lymphatics are more common in the tropics and among halfbreeds.

DIAGNOSIS.—Its origin in childhood, slow, progressive course, the small, deep-seated, thick-walled and sometimes warty vesicles, usually confined to one region, are diagnostic features, which, however, may require a microscopic examination of the contents of a lesion to make the recognition positive. From other vesicular affections lymphangioma vesicles may be distinguished by their thicker walls, long duration without inflammation and by a discharge of lymph. From groups of warts, by their vesicular character.

Lymphangiectasis may be mistaken for *chronic abscess* or *varicose veins*. To make positive differentiation it may be necessary to wait for a discharge

of lymph or to withdraw some for examination. It may be helpful to remember that lymphatic dilatation is always secondary, though the antecedent condition is not often plain, and its most common form is elephantiasis.

TREATMENT.—This is largely local and operative in most cases. When the preceding causes of the disease are known and present, remedial methods should be directed to their removal, if that be possible. The first question to decide is, shall the growths be interfered with at all? If so, the lymphangiomas may be destroyed by caustics, by electrolysis or excised. The *electrocautery* or *thermocautery* is said to give the best results, as the parts need to be deeply destroyed to produce any lasting benefit. The scarring which results is likely to be considerable, and *electrolysis* or excision is to be preferred for exposed surfaces. A needle attached to the negative pole of a battery can be inserted deeply into the vesicles, and the current of from sixteen to twenty cells allowed to pass long enough to produce thorough coagulation of the contents. *Excision* to be effective needs to be carried well beyond the growth and is hardly adapted for the removal of large patches.

Dilated lymphatics may be treated in the same way as varicose veins, by support with elastic bands, etc. If the number and size of the lymph varices is small, electrolysis may be employed as already described. In chronic cases, after the tissues have given way to fistulæ and ulceration, deep cauterization with chloride of zinc has proved efficient. Aggravated cases attended with debilitating lymphorrhagia may demand amputation as the only way of relief.

Internal treatment, physiological and pathogenetic, must be based on general indications found in each case. See *Cal. phos.*, *Carbo. veg.*, *Hydrocot.*, *Pet.*, *Phos.*, *Sul.*, *Vipera*.

NÆVUS PIGMENTOSUS

(*Mole; Pigmentary Mole.*)

Moles are growths or marks that are characterized by being present at birth or appearing in the early months of life by the presence of an excess of pigment and by their persistence practically unchanged through life. Sometimes the mole consists of a small brown or black spot, with no elevation of the skin; more often the skin is raised to form a rounded, sessile tumor, brown in color and varying in size from a minute point to a diameter of half an inch. The mole may be hard or soft; its surface may be smooth, or it may be finely corrugated or warty, *nævus verrucosus*. On some moles, there is a thick growth of hair, constituting the *nævus pilosus*. In others, there is a complete absence of pigment, forming the so-called "white mole." Moles may exhibit a linear arrangement suggesting a nervous influence (*linear nævus; nævus nervosus*). All the pigmented moles, including the *nævus pilosus*, are classed as *nævus pigmentosi*. Moles may be single or multiple and are situated more often on the face, scalp, neck and less frequently on the trunk and extremities. Among

the soft nævi, Unna classes many small, fleshy, sessile or pedunculated growths that correspond to moles in their appearance in early life and their persistency with little change.

ETIOLOGY AND PATHOLOGY.—The exact cause of moles is unknown. Most cases are congenital and occur equally in both sexes. Anatomically, there are two classes of moles: first, those in which the pigment of the skin becomes hypertrophied; second, those in which the epidermis is always hypertrophied, together with some hyperplasia of papillæ, vessels, glands and follicles. There is probably a tropho-neuritic influence present in all cases.

TREATMENT.—Moles may be removed by operative methods and with caustics, but the resulting scars may be as disfiguring as the original pigmentation. The liability to scar formation should be fully explained to patients who solicit radical treatment. When small they can be removed by *excision* and leave only a linear cicatrix or with the electric knife; when warty, by the dermal curette, or they can be destroyed with *electrolysis* by multiple puncture or transfixation. *Sodium ethylate* is probably the best caustic application for moles, as it does not penetrate deeply into the tissues; it should be applied with a glass rod and carefully limited to the part to be destroyed; nitric or strong acetic acid may be applied in dots with a fine pointed glass rod holding a minute drop of the acid. Hairs growing from a mole are often more distressing than the pigmentation; hairs may be permanently removed by electrolysis, as described for the removal of superfluous hair in another section. *Radiotherapy* has been used with indifferent success, while *phototherapy* has succeeded in a number of cases.

In children, and when moles show a tendency to multiply at any age, an indicated remedy should be given. Compare *Cal. carb.*, *Cundurango*, *Fluor. acid*, *Lyc.*, *Nit. acid* and *Petroleum*.

ACANTHOSIS NIGRICANS

In all some thirty cases of this condition have been reported by European observers. Pollitzer and Janovsky related the history of three cases in which there were papillary, wart-like growths which could hardly be classed as ichthyosis, verruca or nævus pigmentosus. In two of the cases the mucous membrane of the mouth was involved. The coloration varied from a gray to a dark brown or blackish tinge, situated on the face, neck, back of hands, fingers, axilla and genital surfaces, while the verrucous growths were chiefly found in the axillæ and groins. Two of the cases developed rather suddenly, the other gradually. There were no local sensations to speak of in or about the lesions.

ETIOLOGY AND PATHOLOGY.—Women are affected more often than men, but not at any particular decade of life. No causes are known, though in two cases one had been exposed to extreme cold, and the other more or less habitually to the severe heat of a pottery furnace. Theoretically, it is possible that vaccina-

tion effects might be a predisposing factor, and in some instances, it may be related to carcinoma. *Pathologically*, dilatation of vessels and lymphatics in the papillary and sub-papillary layers, increase of pigment cells, thickening of papillæ and epidermis, and elongation of rete-pegs, have been noted.

TREATMENT.—Locally, the same methods as advised under *nævus pigmentosus* are called for when feasible, but little effect has been noted. *Thuja* and *Aurum mur.* might be studied.

MULTIPLE BENIGN TUMOR-LIKE NEW GROWTHS

As the name suggests, this somewhat obscure and rare affection consists in the appearance of many small nodules in the skin that exhibit the persistency and innocent character of the benign tumors. In the case recorded the tumors could be pressed into the skin, leaving small temporary pits. Of this disease little is known of its histopathology other than that an absence of elastic fibres and an overgrowth of glandular tissue were found in the growths. Nothing is known regarding its etiology or cure. Schweningen and Buzzi first described this condition as it occurred on the back, arms and chin of a young woman.

COLLOID DEGENERATION OF THE SKIN

(*Colloid milium.*)

Colloid degeneration of the skin or colloid milium is a rare and comparatively unimportant lesion, which usually occurs on the face, especially on the forehead. The disease consists in the appearance of numerous pinhead-sized lesions of a bright lemon-yellow color and a peculiar translucency resembling a drop of serum. When one is incised the contents may be squeezed out as a yellow, gelatinous substance. Microscopic investigation has shown that this lesion does not involve the sebaceous glands, but that it is a localized colloid degeneration of the corium. There are no subjective symptoms and the disease does not seem to be at all related to the general health.

ETIOLOGY.—The causes are unknown. In the very few cases reported nearly all had been subject to exposure to the weather, and two had suffered from headaches or neuralgia.

DIAGNOSIS.—In the diagnosis of these growths milium, hydrocystoma, xanthoma and benign cystic epithelioma may need to be excluded. *Milium* lacks the vesiculoid look of colloid degeneration and its sebaceous contents can be easily demonstrated. *Hydrocystoma* occurs only in hot weather or from exposure to moist heat, and on pricking one of its lesions a clear liquid will

escape quite different from the gelatinous product of colloid change. *Xanthoma* is usually confined to the neighborhood of the eyelids; its lesions are a deeper yellow and never simulate the vesicular type like colloid growths. In *multiple benign cystic epithelioma* the lesions are disseminated over the body, often congenital in origin, and are seldom yellowish in color.

The TREATMENT consists in removing the growths by incision and expressing their contents, or removal with the curette, and sometimes perhaps by electrolysis. Internally, physiological and drug treatment should be given on the needs of each case. Drug remedies believed to influence colloid metamorphosis may be thought of, such as *Baryta carb.* or *B. iodide*.

LUPUS ERYTHEMATOSUS

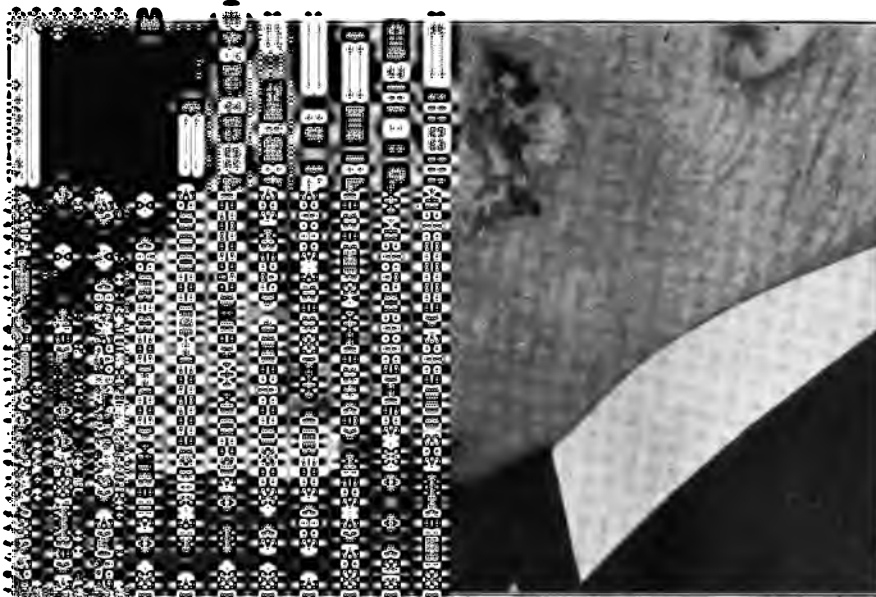
(*Lupus superficialis*; *L. sebaceous*; *L. erythematodes*; *Ulerythema* (Unna), etc.)

DEFINITION.—*Lupus erythematosus* is a disease of adult life characterized by the appearance of reddened, scaly patches which persist for many months or years and terminate in areas of atrophy that resemble thin, depressed scars.

The most common location of this eruption is upon the bridge of the nose and the adjoining surface of the cheeks, where the red patch often assumes a symmetrical form resembling a butterfly with outstretched wings, whence the name butterfly lupus. The eruption appears as a small, dusky-red spot, slightly elevated above the surrounding skin, which soon becomes covered with yellowish, horny scales that are quite closely adherent to the surface. When a scale is removed there is seen upon its under surface a small, peg-like projection that corresponds to a small pit in the skin. From the naked eye appearance Hebra concluded that the pits were the mouths of hair follicles and sebaceous glands, and that the plugs were composed of dried sebaceous matter. From microscopical and, it would seem, more exact observation, Unna declares that the scale is composed of the thickened stratum corneum that has extended down into and filled the hair follicles, forming the pegs.

A *telangiectic* form has been described characterized by persistent, circumscribed redness, which is found to be due to dilated blood-vessels and is attended with marked thickening of the skin. The degree of redness varies considerably in different cases, but it usually has a characteristic violaceous tint. Itching or burning may occasionally be felt, but there is never any moisture unless complicated with eczema, which is rare.

The lupus lesion gradually increases to the size of a quarter or silver dollar, or even larger. When examined closely the reddened patch is found to be made up of many small, flattened papules that have coalesced. Sooner or later a process of atrophy sets in at the centres of the individual papules, so that the surface of the lesion is sprinkled with small, pinhead-sized depressions that



ERYTHEMATOSUS

and general health, except a periodic headache every one or two weeks, attended with throbbing pain. Duration, three years. A few weeks ago a patch about the size of a silver half-dollar, with red, scaly edges, and several blackish crusts said to be the seat of the disease. Cured with *natrum mur.*, twelfth potency. A photograph taken when the patch was on the skin once the seat of the disease.



ERYTHEMATOSUS

Duration of disease, six months. The patches shown in the illustration were formed along the interparietal suture. The central violaceous color remains at the centre is becoming atrophic. *Rhus* extract was used in the cure.

become white and smooth like minute cicatrices. The atrophic process continues, and, after the lapse of years, the disease may cease to advance at the borders, the redness disappears and the site of the lesion is marked permanently by a depressed, cicatrix-like, shining, atrophic area.

Besides the nose and cheeks, lupus erythematosus is sometimes found upon the scalp, when it leads to permanent baldness; also on the ears, and, less frequently, upon the limbs and trunk. The yellowish crust is often absent. An acute and generalized eruption of erythematosus lupus, with high fever and typhoid symptoms, has been described. It is a fatal disease and rarely, if ever, seen in this country. Crocker mentions a nodular form of lupus erythematosus, in which growths from a hemp-seed to a bean in size persisted for a long time with little tendency to central involution, but in one case resulted in atrophic scarring.

The *course* of lupus erythematosus is usually very slow, sometimes stationary for a long time, and often lasting for years—ten, twenty, or even longer.

ETIOLOGY AND PATHOLOGY.—The cause of the disease is unknown. Besnier and other French dermatologists still maintain the tubercular nature of lupus erythematosus and its close connection with the undoubtedly tubercular eruption, lupus vulgaris. This claim is based on such clinical evidence as the frequent occurrence of the disease in certain tuberculous families, and in those who are constantly associated with tuberculous cases. It is also claimed that the erythematosus lupus sometimes passes into the tuberculous form. The majority of dermatologists have relinquished this claim, since lupus erythematosus lacks the histological structure of tubercle, since careful and repeated search has failed to reveal the tubercle bacillus and since inoculation experiments on animals have been fruitless; whereas the tubercular nature of lupus vulgaris has been repeatedly proved by all these tests.

This disease usually develops in the third decade of life and attacks females twice as often as it does males. It has been known to follow acne seborrhœic dermatitis, variola, erysipelas, and undue exposures to sunlight and other thermal agencies or to frequent attacks of permo.

As to the histology of the lesion, Hebra's suggestion as to the sebaceous nature of the overlying scale has led many investigators to discover changes in the sebaceous glands; but the more careful work of Unna has shown that the sebaceous glands take no active part in the disease, and that the scales and pegs are composed of the thickened stratum corneum that fills the atrophied hair follicles. The flattened papules, like the syphilitic papule, are due to an infiltration of the cutis with round cells (plasma cells); and the subsequent atrophy consists in a softening and absorption of the fibrous cutis, atrophy of the follicles and glands and thinning of the epidermis. The essential changes are the infiltration and subsequent atrophy of the cutis, whereas the scale formation is only incidental and, in many cases, does not occur. Unna substitutes for the name, lupus erythematosus, the more descriptive term, *ulerythema centrifugum*. Robinson claims that the primary lesion is focal in character and may be situated in any part of the corium, and when developed constitutes

a new growth which is reticular in character and closely associated with the lymphatic system. In substance he believes the condition is a "local infective process—a granuloma."

PROGNOSIS.—As a rule, lupus erythematosus is not associated with other diseases. Though cases are recorded in which the patient died of disease of the heart, lungs or kidneys, any close relation of these diseases with the lupus is, at least, questionable. The eruption usually persists for a number of years, either increasing or remaining stationary, and finally either with or without treatment the color fades, the scale disappears and the depressed atrophic surface alone remains. Apparent sudden improvement or blanching may take place by a temporary decrease of blood in the capillaries of the part, but, in a few days, the lesion usually assumes its former disfiguring color. Occasionally a very superficial patch of comparatively short duration may disappear without scarring. Rarely lupus vulgaris develops during its course.

DIAGNOSIS.—The violaceous color, adherent scales with the minute projections underneath, found upon removal, occurring in adult life and often exhibiting some atrophic spots, are usually sufficient to determine the existence of lupus erythematosus. It may be closely simulated by eczema, psoriasis, lupus vulgaris, trichophytosis and syphilis.

An *eczema* patch is not so sharply defined, is frequently moist and attended with pronounced itching; its scales or crusts do not have prolongations on the under side; it is more rapid in its course and never leaves scars. Occasionally outbreaks of eczema may complicate a lupus.

Psoriasis is not common on the face without positive signs of the disease elsewhere on the surface. Its scales do not fit into pit-like depressions, nor does it produce scars, or, as a rule, cause baldness, when situated on the scalp.

Lupus vulgaris, as a rule, occurs before adult life, is rarely symmetrical, is characterized at times by the presence of jelly-like tubercles, often ulcerates and leaves disfiguring scars. A *ringworm* patch is unusual in adult life; it does not show the characteristic scales or scars of lupus erythematosus, and a microscopic examination of the scales of ringworm will show the presence of the trichophyton fungus. A scaly *syphilide* may closely resemble lupus in shape and general appearance, but the lesions are more rapid in their evolution; they are usually associated with other signs of syphilis, and do not exhibit the peculiar scales projected into the skin of erythematous lupus, and are much less hyperæmic.

TREATMENT.—Two local conditions—hyperæmia and superficial cell infiltration—are to be overcome in curing lupus erythematosus. All influences which tend to keep up or increase these conditions must be eliminated. The diet of plethoric subjects needs to be cut down, especially as regards meats and other stimulating food. Fresh vegetables, fruit and very moderate use of meat is the best diet for most cases in the author's experience. Due allowance must be made, however, for differences of habit, occupation and especially for idiosyncrasies in each case, but the rigid avoidance of all articles which are known to aggravate the redness must be enforced. Systematic care of the whole skin by

a daily bath and frictions adapted to the case in hand is helpful. The same may be said of physical exercise.

Although the subjects of lupus erythematosus usually seem to be in good general health, careful inquiry will nearly always reveal some indication on which an internal remedy may be selected. When the symptoms have been clear and characteristic of some drug, I have seldom failed to see a good effect produced by it on the diseased skin. *Natrum mur.* and *Rhus tox.* have been found most often indicated, but these do not stand alone nor does the list below comprise all the drugs among which may be found the nearest similia, but only those which experience has shown to be of benefit.

Local measures are usually relied upon for the cure of lupus erythematosus, but the patches of this disease are so easily stimulated into activity that great care is necessary if local applications are used at all. When a well indicated internal remedy is found in a given case I believe it is wise to forego all applications until internal treatment has proved ineffective. Some of my cases have responded almost immediately to indicated drugs, especially to the two named above, without the aid of external applications. If local methods are deemed necessary they may be employed chiefly for a mechanical effect in the removal of hard and irritating scales; for a pathogenetic effect to stimulate resolution, or they may be operative for a like purpose.

Phototherapy while not achieving the notable results in the treatment of erythematous lupus that it has in lupus vulgaris, has yielded good results in cases of a subacute nature with an excessive vascular development. *Radiotherapy* seems better suited for those cases in which deeper involvement of the cutis is noted, the follicles and glands sharing in the process and infiltration being marked. In a number of cases a combination of both photo- and radiotherapy has worked well when neither alone seemed to accomplish the end in view. Bissérié records thirty-three cures in a total of sixty-two cases of lupus erythematosus treated by the *high frequency currents*. It is our personal experience that the high frequency currents will often complete a cure started by the Röntgen-rays, and Leredda believes they should precede phototherapy. Danlos recommends *radium* for this disease; our results have been absolutely negative.

Simple *mechanical* methods may consist of frequent anointing of the plaques with cold cream, olive oil, sweet almond oil or other non-medical fat, and occasionally rubbing them with tincture saponis camphorata. This keeps the surface free of scales and has only a moderately stimulating effect, which should be allowed to fully subside before the tincture of soap is again applied. If too great aggravation is obtained ordinary soap and water may be employed for cleansing, only the mechanical removal of the scales being sought for in this way. The reaction following from an occasional and moderate stimulation (aggravation) is, however, often beneficial in promoting resolution.

In some cases a more decided *pathogenetic* effect needs to be produced. *Green soap* is often chosen for this purpose, and preferably dissolved in alcohol—two parts to one part of alcohol. This is rubbed briskly over the patch

until it removes the scales; the inflamed surface which follows from the application can be dressed with simple ointment until the resulting crust is shed, then the soap can be reapplied. If the reactions from this treatment show no succeeding improvement in the eruption after a few trials it should be discontinued, as, though very effective in some instances, it appears equally ineffective or harmful in others. Among a multitude of applications which have been recommended may be mentioned tincture of *iodine*; *iodide of glycerine*; solution of *caustic potash*, one part to eight to twelve parts of water; *naphthol*, one per cent., or *resorcin*, five to fifty per cent., or *sulphur*, ten to thirty per cent., or *salicylic acid* in five to ten per cent. in solution or ointment; solution of *carbolic acid*, saturated or diluted with two to four parts of water; *ammoniated mercury* ointment and *pyrogallol* acid in five to ten per cent. ointment. Some of these, such as iodine and salicylic acid, may be used in collodion with greater effect. *Oxidized pyrogallol*, one to two per cent., in acetone collodion is recommended. Others are serviceable in plaster form, especially *resorcin*, *naphthol* and *mercury*. Whatever local agent is employed, the stimulating effect should not be carried too far, but allowed to subside at intervals, and often with the aid of soothing and protecting applications. The strong chemical caustics should never be used, and operative methods are only justified when the disease does not yield to other well directed measures, or the lesions are hypertrophic and resistant. It is to be remembered that lupus erythematosus is a benign affection unattended with danger to life, and that there can be little or no excuse for the employment of powerful agents likely to leave scars more persistent and perhaps more objectionable than the primary disease.

Superficial *scarification* made in two or more directions and over only a small surface at one time is probably the best operative method. The bleeding which follows may be arrested by pressure, or, if necessary, by the application of carbolic acid, one part to four parts of water. Afterwards mild antiseptic ointments or plasters may be employed during the healing process, and, meanwhile, another section of the patch can be treated in like manner. *Curettage* or scraping away the infiltrated tissue with a sharp spoon is a severe method which is likely to result in considerable scarring, but is sometimes effective in intractable cases. The subsequent treatment of the surface is the same as after scarification. Both of these methods induce fibrous change and are therefore in a line with nature's method of obliterating the disease.

Electrolysis, the *galvano-cautery* and the *thermocautery* have not proved of enough advantage over other methods to warrant the production of more or less disfiguring scars, which must always follow their efficient employment.

For internal remedies see indications for *Apis*, *Fluor. acid*, *Hydras.*, *Hydrocot.*, *Kali mur.*, *Natrum mur.*, *Rhus tox.*, *Pet.*, *Sepia*.

MYXCEDEMA

(Cretinoid œdema.)

Myxœdema is an infrequent disease characterized by a thickening of the skin, atrophy of the thyroid gland and a progressive failure of the bodily and mental power. In the skin the disease commences upon the face, giving it a swollen, œdematous appearance, the so-called moon-face, which, to the trained eye, is typical of the disease. This swelling generally extends to other parts of the body. The swollen tissue is firm and does not pit on pressure. Its surface is dry and anæmic and over the extremities is sometimes livid; the hair falls out, especially from the axillæ and pubis. Together with this remarkable change in the skin, there develops a feebleness of body, dullness of the special senses and a sluggishness of mind that may increase to imbecility.

ETIOLOGY AND PATHOLOGY.—The cause of the disease is still obscure. It may occur at any age, but is most common in women after middle life. As in nearly all cases the thyroid gland has been found atrophied, and as a similar stage has been induced by the removal of the thyroid in human beings and animals, the atrophy of the thyroid is supposed to be the original lesion. The cause of the thyroid atrophy is unknown, but heredity is probably a factor and the pathogenesis very like that of sporadic cretinism in which a congenital deficiency of the thyroid has been found. Ord states that there is a mucous degeneration of the subcutaneous fat and infiltration of the cutis with mucin, whence the name myxœdema, or mucous dropsy. Hun observed that there was a general atheromatous endarteritis and it is generally admitted that the nervous system is involved, although Charcot's contention that this involvement is the primary factor may be doubted.

DIAGNOSIS.—The increase in the volume of the skin in myxœdema may be distinguished from *dropsical swellings* by the absence of pitting on pressure and by the absence of primary kidney, heart or other disease resulting in dropsical effusion into the skin. *Acromegaly* can be excluded in the absence of enlargement of the bones, chiefly of the hands and feet. No other disease is liable to be mistaken for myxœdema if its characteristic symptoms are kept in mind.

TREATMENT.—This is always by "*thyroid feeding*." The desiccated or powdered glands given in capsule or tablet form are most convenient for this purpose. The dose should be small at first, say, of one grain three times daily, and gradually increased up to five grain doses, if needed, or if symptoms of thyroidism (rapid pulse, shortness of breath, restlessness, etc.) do not appear. Usually relief from the symptomatic condition is prompt and fairly complete in a few weeks. But it is only relief, and the effect must be kept up by smaller or less frequent doses of the thyroid for months or years, and perhaps throughout the life of the patient. Thyroid grafting and hypodermic injections of the liquid extract have been used.

In addition, physiological methods should be employed to aid in maintaining a good nutrition, and especially in protecting the surface from cold. As a further aid any indicated constitutional remedy may be given. *Cal. carb.* has proved beneficial.

ACROMEGALY

(*Marie's disease; Pachyacia.*)

Among the new formations of the connective tissues is placed this peculiar disease. Acromegaly or, better, pachyacia, is a rare disease characterized by progressive enlargement or thickening of the hands and feet. Sometimes the prominent parts of the face and ears are also involved. The PATHOLOGICAL changes consist in an actual thickening of the bones and cartilages with no elongation, and a hypertrophy of the skin and subcutaneous tissues. The skin is yellowish, sometimes pale and waxy; usually it is wrinkled and the growth of hair increased.

ETIOLOGY.—The cause of the disease is unknown, although many believe it is due to tumors of the hypophysis. It appears principally in adult life and invariably advances through different stages of physical and mental decline to a fatal termination. Whether the peculiar development of tissue is due to a diathesis beginning in middle or late life or to primary nerve disturbance is unsolved. It occurs in both sexes, but more often in males.

The DIAGNOSIS is easily made on its characteristic features. The even enlargement of the hands and feet out of all normal proportion to other parts of the limb, giving "sausage shape" to the fingers and toes and general massiveness to all these parts, is not found alone in any other disease; while, about the face the exaggerated projections, such as the lower forehead, nose, lips, ears and chin, are equally characteristic. It may be confounded with *myxædema*. The latter disease does not affect the bones, is attended with changes in the thyroid gland and the enlargement is due to deposits in the connective tissue. The symmetrical and uniform size of the whole body in what is known as "gigantism" is a sufficient difference on which to exclude acromegaly, while the limitation of the enlargements to the bones in *rheumatoid arthritis*, beginning usually in the larger joints, one after another, and resulting in deformity, clearly distinguishes it from the disease in question.

TREATMENT.—Because frequent anomalies of the thyroid and thymus glands have been noted in cases of acromegaly, thyroid extract and other animal extracts have been used internally, but with poor success. Treatment by indicated remedies may be formulated on any indications present, but there is little effect to be expected from any known drug. The lime salts deserve study for this disease, especially *Cal. carb.*

B. BENIGN EPITHELIAL GROWTHS

The new growths of epithelial origin, like those growing from connective tissue, are conveniently divided into a benign and a malignant variety.

Of the benign growths, the simplest are those that consist of a mere thickening of the epidermis without marked enlargement of the underlying papillæ. These are the two common lesions, callositas and clavus, the less frequent growth, cornu cutaneum, and that peculiar thickening and cornification of the epithelia of the hair follicle known as keratosis follicularis. A second group may be made of those growths in which the thickening of the epidermis is associated with a marked hypertrophy of underlying papillæ. These are verruca and papilloma cutis. A third group is formed by those benign growths which originate in the epithelia of the cutaneous glands. The glandular epithelia proliferate and build up small nodules and tumor masses, whose minute structure closely resembles that of the gland from which they spring. This latter class is represented by molluscum contagiosum, multiple benign cystic epithelioma and adenoma cutis.

CALLOSITAS

(*Callosity; Callus; Tyloma; Tylosis.*)

Callositas or callosity is the name given to the hard and thickened patches of epidermis that form on parts exposed to intermittent friction or pressure. It is found most frequently on the palmar surface of the hand and the plantar surface of the foot. On the foot, callosity is caused by prolonged walking or from the pressure of tight shoes; on the hand and fingers it is due to pressure or friction of some hard implement in frequent use. Hyde accentuates the fact that only intermittent pressure produces callosity; continuous pressure results in atrophy or ulceration.

The callosities are usually rounded, slightly elevated areas, very tough or horny in consistence and of a yellowish or brownish color. *Microscopically*, the callosity consists of a marked increase in number of the cells of stratum corneum, which are packed closely together, one layer upon another. There is no enlargement of the papillæ of the corium and the rete mucosum is thinned by pressure. The callosity is painless even when subjected to pressure. When the irritation which causes it ceases, the extra layers of epidermis usually scale off and the skin returns to its normal condition; for callosity is merely protective to the part upon which it forms. At times callosities develop independently of pressure, in which case they are usually symmetrical; such cases are supposed to be of neurotic origin and are now classed as keratoses.

The **TREATMENT** of callus when required is purely mechanical. The thickened corneous layer may be thinned with a file, rubbed down with pumice

stone or pared down with a sharp knife; then salicylic acid plaster may be applied for a few days when the horny epithelium will be found loosened and can be peeled off. There can be no object in removing an ordinary callus unless the cause can be avoided. *Ant. crud.*, internally, may be of service in lessening an unusual tendency to callus.

CLAVUS

(*Corn.*)

Clavus, or corn, resembles callosity in structure, being a simple thickening and hardening of the epidermis; it differs from callosity in forming a small rounded tumor instead of the diffuse thickening. In clavus, the epidermic cells of a circumscribed area multiply; those in the centre of the thickened area undergo a corneous metamorphosis, forming a central plug of horny substance, which is called the core or root of the corn. The central core extends inward to the corium, the papillæ of which are usually congested and may be either hypertrophied or atrophied. Unlike callosity, clavus is often the seat of considerable pain caused by the pressure of the central core upon the sensitive papillæ. The pain is often the result of external pressure, but there may be spontaneous pain which, like that of rheumatism or neuralgia, anticipates stormy weather with barometric accuracy.

Clavus occurs almost exclusively upon the toes, especially upon the outer surface of the little toe. When occurring upon the outer surface, the corn is hard and dry and the surface has a horny gloss. It is then known as a *hard corn*. When occurring between the toes, the moisture of the skin macerates the thickened epidermis, forming a white, pulpy swelling which is called a *soft corn*.

ETIOLOGY.—The cause of clavus, like that of callosity, is intermittent pressure. It is caused not only by tight shoes but by shoes that are not well fitted to the prominences of the foot.

The **TREATMENT** of corns has for its object the removal of the cause and then the removal of the hypertrophic horny tissue. Footwear, which, as Crocker says, "conform to the shape of the foot, instead of trying to make the foot conform to the boot," should take the place of ill-fitting shoes. For the relief of hard corns the centre may be cut out and the corns frequently rubbed with soap, then occasionally soaked in water, and as they become soft gradually pared down with a sharp knife; or, *salicylic acid* plaster or a ten per cent. *resorcin* plaster may be placed repeatedly over the corn and as the horny epithelia loosen they are peeled off with the plaster until the whole is removed. Afterwards, daily rubbing for a time with soap and alcohol will keep the part sound, provided the cause is removed. Hebra's Corn Remedy may be used for either hard or soft corns, but it requires to be applied too frequently for the convenience of most people. It consists of

℞ Salicylic acid.....	gr. 15.
Ext. cannabis ind.	gr. 8.
Alcoholis.....	m. 15.
Etheris.....	m. 40.
Collodion flexile.....	m. 75. M.

This solution is painted over the corn with a brush three times a day for a week, then, after soaking the part in hot water, the corn can be picked out. While soft corns are being treated, thin soft felt or wool may be worn between the toes during the day. Temporary relief from a painful corn may be obtained by wearing a corn plaster with an open centre, which allows its being fitted around and shifts the pressure from the growth. This opening also permits of applications to the corn while the plaster is in place. Corns should not be treated so as to excite inflammation. The author has seen one case of gangrene of the toe, necessitating amputation of the toe and a part of the metatarsal bone following from harsh domestic treatment. If corns are sensitive or persist after the mechanical causes are removed indicated drugs such as *Ant. crud.*, *Cal. carb.*, *Nat. mur.* and *Sulphur* may be useful.

CORNU CUTANEUM

(*Cornu humanum*; *Cutaneous horn*.)

Cornu cutaneum, cutaneous horn or horny excrescences may occur on any portion of the body, but are most frequently found on the scalp, face and penis. They are usually single, but may be multiple. The horn is generally quite small and resembles in its curved shape and hard substance the horns of the lower animals. The substance of the horn consists of epithelium, or of a mixture of sebaceous matter and epithelium which has undergone corneous transformation. As found in the horn, the epithelia are thin scales arranged in concentric layers around several small central spaces; like the cells of the stratum corneum, they have no nuclei. The growth seems to originate principally from the cells of the rete mucosum, though it sometimes springs from the epithelia of the sebaceous glands. Beneath the horn there is usually some slight enlargement of the papillæ of the corium.

The cutaneous horn is tough, hard and dry. Its surface is wrinkled transversely and striated longitudinally. Its color is yellow, brown or black. After a horn has grown to a certain size it is apt to drop off, leaving an eroded surface from which a new horn is likely to grow. At times a horn will attain a remarkable length, some cases being recorded in which it measured fifteen to twenty centimetres.

Sutton classifies cutaneous horns as *wart horns*, *sebaceous horns*, *cicatricial horns* and *nail horns*. The wart horn grows from an ordinary wart. The sebaceous horn develops from a ruptured sebaceous cyst, and can only be distinguished from the wart horn by the presence of such a cyst at its base.

The cicatricial horns are uncommon; they develop from a scar, especially the scar of a burn. The nail horn grows from the distorted toe nails of bed-ridden patients, most commonly from the great toe.

According to Lebert, of the recorded cases of cutaneous horns twelve per cent. have been the starting point of an epithelioma; this occurs particularly with wart horns. Aside from this fact, cutaneous horns have no bearing on the general health.

ETIOLOGY.—Of the causes of cutaneous horns we know nothing aside from their secondary origin as classed by Sutton, and their almost exclusive occurrence after middle life. They have been observed, however, at all ages and a very few in infancy. One of my own cases in a girl of seven was said to have existed from birth.

TREATMENT.—In view of the liability of epithelioma to develop at the site of horns they should be completely removed. This may be done by first softening them with hot alkaline water dressings and then cutting or paring them down to the base; then the latter may be destroyed by chloride of zinc paste, or curetted and dressed antiseptically. If the base is cystic it may need to be dissected out, and sometimes it is better to give an anæsthetic and remove the growth by excision, leaving a closed wound and hence a smaller scar. Horns may be cut down and made less conspicuous or troublesome, but unless the base is destroyed they will continue to grow.

KERATOSIS FOLLICULARIS

(*Ichthyosis follicularis*; *Ichthyosis sebacea cornea*; *Psorospermose folliculaire végétante*; *Darier's disease*.)

Keratosis follicularis is a rare disease which consists in the appearance of minute papules on the scalp, face, groins, hypogastrium and over the sternum. The peculiarity of the papule is that it contains a dark colored horny plug, which is imbedded in a hair follicle and projects above the surrounding skin surface. The plug is readily picked out, leaving the dilated follicle as a small pit. Surrounding the horny plug there may be dark colored greasy scales resembling those of seborrhœic eczema. In the folds of the skin where there is much moisture, as in the groins, around the anus and behind the ears, the papules may enlarge, become eroded and discharge an abundant seropurulent secretion. *Microscopically*, the disease consists in an active proliferation of the epithelia that line the ducts of a sebaceous gland and the adjoining hair follicles. Both duct and follicles are dilated by a mass of cells that have undergone corneous change and constitute the peculiar plugs that are characteristic of the disease. This rapid formation of epithelia, and the corneous transformation, while perfectly normal in the adjoining epidermis, are decidedly abnormal when occurring in a hair follicle and the duct of a sebaceous gland.

ETIOLOGY.—The cause of the misplaced cornification is as yet undemonstrated. Of twenty cases of keratosis follicularis that have been collected, thirteen occurred in males and a majority began before the age of twenty-five years. Several of the cases have occurred in the same family, a fact that points with equal force to heredity and to contagion. Darier, who has studied the disease closely, at first claimed that many of the epithelia of the duct contain bodies that he regarded as psorosperms. He believed the disease to be due to these parasites, a follicular psorospermiosis analogous to Paget's disease of the nipple and molluscum contagiosum. This view of Darier was corroborated by Wickham. As the result of new investigations, the propounders of the above theory as well as other authorities agree that the bodies which resemble psorosperms are produced by cell-transformation.

The PROGNOSIS of this curious disease is unfavorable as to cure. The disease attacks progressively fresh areas of skin, and the older lesions remain unchanged or increase in size. There is seldom any associated affection of the general health, though if there is ulceration of the inguinal or other lesions the resulting distress and disturbance of sleep may wear decidedly upon the constitutional powers.

The DIAGNOSIS is made upon the presence of the papules with their peculiar plugs, and the tendency to ulceration in the groins or behind the ears. The disease can hardly be mistaken for *keratosis pilaris* or for *seborrhæic eczema*, to which articles the reader is referred for their differential points.

TREATMENT.—As this has been unsatisfactory so far, the field is an open one. The local methods employed for ichthyosis have been suggested, and Crocker says he should be inclined to try soft soap inunctions, followed by sulphide of potassium baths for an hour daily, or baths at some sulphur spring. It would seem as though alkaline or saline baths with frictions, followed, or perhaps preceded by, rubbing with a weak salicylic acid ointment, ought to prove beneficial, as it does in simpler forms of keratosis.

Internally some remedy known to have an affinity or predilection for epithelial structures of the hair follicle may be selected on this and any symptoms found in a given case.

VERRUCA

(Wart.)

The name verruca or wart has been applied to several forms of excrescence upon the skin. The most frequent variety is the *verruca vulgaris*, or common wart, which is usually a small elevation, the surface of which is roughened and horny. It may be scarcely elevated above the surrounding skin or it may attain a height of one-eighth of an inch; its color is pink, yellow or gray. Common warts are usually found in children, especially upon the hands and face. They often disappear spontaneously (*verruca caducea*); on the other

hand, they may be very persistent, recurring several times after removal (*verruca perstans*). Warts are usually due to some external irritant applied to the skin, probably parasitic in nature and often auto-inoculable. Some warts are undoubtedly contagious, while others are congenital. The different clinical forms of wart have been designated by various names.

Verruca filiformis is a slender sessile growth, often isolated, sometimes multiple and grouped, and quite often seen upon the neck or shoulders of adults; rarely they are congenital. *Verruca plana* refers to flat warts, from a pin-head to a half inch in diameter. *Verruca digitata* is applied to finger-like warts, made up of several distinct lobules or parts. A peculiar variety of *verruca vulgaris* is seen in adults, especially in laborers, as a dense warty growth along the margin of the finger nails.

Verruca senilis (*seborrhæic wart*, *keratosis pigmentosa*) is that variety of wart that appears upon the neck, shoulders and arms of old people, in conjunction with other senile changes of the skin. They are usually multiple, often pigmented and may attain a large size.

Verruca necrogenica (*anatomical tubercle*, *post-mortem wart*) is an undoubtedly contagious form of warty growth, occurring usually on the hands as a result of inoculation from a corpse. In most instances it is a form of tuberculosis of the skin (q. v.).

Verruca acuminata (*condyloma acuminata*; *venereal wart*; *fig wart*) has little resemblance to the other forms of verruca. It is found about the genitals and anus, sometimes upon the face, as a fleshy elevation that tapers to a point. Pointed condylomata are usually found in groups and may attain a very large size. They are pink or red in color and often excrete an offensive, purulent liquid, and bleed easily. When upon the face, or when not associated with friction, heat or moisture, the surface may become hard and roughened, like an ordinary wart.

ETIOLOGY.—The causes are unknown, although there can be no doubt that the great majority of warts are nests of various types of micro-organisms. In childhood especially it is a fact that they may result from external contact, and probably they are feebly auto-inoculable and infectious. Jadassohn has developed warty lesions in the human species by inserting fragments of warts in superficial incisions of the epidermis. Senile warts are probably due to changes in the nutrition of the skin, incident to old age. The cause of the pointed condyloma or venereal wart is a local irritant, as the discharge of gonorrhœa, leucorrhœa or a chancroidal ulcer. The irritant need not necessarily be venereal, as shown by numerous instances. The condyloma acuminata has no connection with syphilis nor with the broad, flat, syphilitic condyloma, for the latter is a growth from a syphilitic papule or mucous patch.

PATHOLOGY.—In the formation of all verruca, the essential pathological change is a thickening of the prickle-cell layers of the epidermis, from which fact Auspitz well named these growths *acanthomata* (Gr. *acantha*, a thorn or prickle). The elevation consists principally of thickened epidermis which also burrows down between the papillæ of the corium, flattening them laterally into long, slender, branching arms of fibrous tissue.

PROGNOSIS.—In themselves, verrucae are innocent growths. It should be remembered, however, that epithelioma sometimes develops from an apparently innocent wart, or, rather, that the early stage of some epitheliomata closely resembles a simple wart. Theoretically, the verruca necrogenica may be followed by general tubercular infection; but, practically, the growth, while apt to recur after removal, remains as a local disease of the skin, slowly extending over a variable area.

TREATMENT.—Ordinary warts have been cured so many times by suggestion that this may constitute a part of any non-operative treatment. Definite directions as to the hour and minute of taking a dose or making a local application may accomplish this, but should not be repeated many times in succession. In the case of warts it seems almost as essential to forget their existence as to first fix the mind upon them. They disappear, but no one has ever witnessed their sudden recession or seen them fall. Whatever remedy is found indicated internally may be applied to the wart at the same time the dose is taken, repeated two or three times a day at an exact hour for a few days, and then omitted for a week or longer. This short course may be renewed as many times as needed and is frequently effective.

Sulphate of magnesia, nitromuriatic acid and arsenic in full doses have been recommended for the cure of warts. They do not appear to have any advantage over individualized remedies given in small doses.

If local methods are relied on, they may vary with the kind, number and location of the growths. Ordinary warts may be covered with *salicylic acid* plaster or painted with salicylic acid collodion until the horny layer is removed and then touched with dilute acetic acid twice a day; or, glacial *acetic acid*, or the *ethylate* of sodium may be applied and repeated after each crust separates until the whole is reduced. *Nitric* or *chromic* acid serve the same purpose, but they are more painful. For more extensive warts a saturated solution of salicylic acid in alcohol frequently applied is often serviceable. If this fails, painting occasionally with tincture of *iodine*, or a twenty per cent. solution of *resorcin*, may be tried before resorting to the use of caustics as mentioned for single or smaller warts. A saturated solution of *potassium bichromate* made with boiling water but applied cold once daily may be useful. The *high frequency currents* (Oudin resonator) have been successfully used. Warts have been removed by a few exposures from a soft X-ray tube, but *radiotherapy* has not given as uniform favorable results in the treatment of these conditions as one might expect. *Radium* and concentrated *solar rays* have also been used.

Filiform and digitate growths may be cut off with curved scissors, the base touched with the pointed stick of nitrate of silver, with carbolic acid or powdered tannin. Pedunculated warts may be treated in the same way, or if large, as they are apt to bleed freely, they may be removed by the *galvano-cautery*. Acuminate or moist warts may be made to disappear by keeping them perfectly clean, dry and dusted with a finely powdered boric acid or salicylic acid and starch, and, if needed, occasionally brushing them over with a solution of persulphate of iron.

When a patient solicits the quick removal of one or a small number of common warts they can be removed with the dermal curette, followed by cauterizing the base; or when of large size, by *excision* as for other growths of similar size. *Electrolysis* may be employed for the removal of warts, especially when they tend to return, and the galvanic *écraseur* when unusually vascular. The verrucæ which sometimes appear during pregnancy should not be interfered with. After pregnancy if they do not disappear, as they are likely to in a reasonable time, they may be treated according to their kind and location.

The seborrhœic warts occurring almost exclusively in old age are included under *verruca senilis*, and if treated at all may be dressed occasionally with a five to ten per cent. plaster of resorcin, naphthol or salicylic acid. If operative measures are demanded the *Paquelin cautery* has been recommended.

Among drugs which may be indicated for combined internal and external use see indications for *Ant. crud.*, *Baryta carb.*, *B. iod.*, *Cal. carb.*, *Carbo animal.*, *Caut.*, *Kali mur.*, *Lycop.*, *Nat. mur.*, *Nat. sulph.*, *Phos.*, *P. acid.*, *Psor.*, *Sepia*, *Sul.*, *Thuja*.

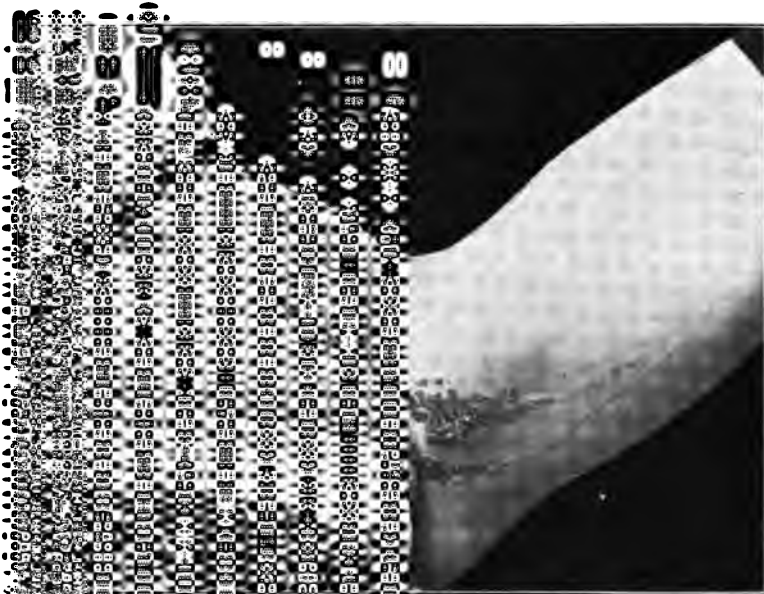
PAPILLOMA CUTIS

The word papilloma is of little further service in dermatological nomenclature, though still used to a large extent in clinical surgery. The work of Auspitz, Virchow and Unna having separated the warts or verrucæ from the papillomata there remains no specific growth to which the name can be applied, and the word has come to rank with "tubercle" or "papule" as the name of a lesion of a disease rather than the disease itself. Thus, cutaneous growths that are "larger than a tubercle and smaller than a tumor," having a roughened or warty surface, are called papillomata. Such growths occur in mycosis fungoides and in dermatitis medicamentosa, particularly in the iodine and bromine eruptions.

Neuropathic papilloma or *nævus unius lateris* consists of a row or rows of warty growths that appear along the course of a nerve trunk or its branches. They are supposed to be associated with some nerve lesion. Von Recklinghausen suggests that they are the result of a congenital neuritis.

DIAGNOSIS.—Papillomatous growths may be recognized by their size, their outer covering of either vegetating or dry and horny epithelium, and by the absence of the characteristic signs of other neoplasms.

The **TREATMENT** is that of the disease or condition from which they originated. The *bromine* and *iodine* salts are worthy of study. For the so-called neuropathic form see drugs suggested for verrucæ.



THIC PAPILLOMA

8 MONTHS LATER

shows a history of a gradual development of the lesion from temporary treatment.

MOLLUSCUM CONTAGIOSUM

(*Molluscum sebaceum*; *M. epitheliale*; *M. verrucosum*; *M. sessile*; *Epithelioma contagiosum*; *Acne varioliformis*.)

Molluscum contagiosum or epithelioma contagiosum is characterized by the appearance of small, pink, pearly or yellowish nodules, usually occurring upon the face and also, in adults, upon the genitals. The nodule begins as a papule that grows, in several weeks, to the size of a small pea. **The developed nodule is globular in shape, firm and elastic to the touch and presents at its summit a small opening from which a waxy or colloid substance may be squeezed out.** Atmospheric dust adhering to the tip of the waxy plug forms a small black spot, as in comedo. With exceptional variety the growths may increase to the size of an orange (*molluscum giganteum*).

The disease is always benign and unattended by constitutional symptoms. Having attained their full size, the little tumors remain stationary for some months. Within a year they usually undergo absorption and disappear spontaneously. No scar or disfigurement remains unless, indeed, caused by the harsh treatment to which these innocent growths are sometimes subjected.

ETIOLOGY AND PATHOLOGY.—As the name implies, molluscum contagiosum is a contagious disease. Well authenticated cases are recorded of its transmission from one child to another or from an infant's face to the maternal breast and vice versa. Sometimes, as with ringworm and impetigo contagiosa, an epidemic of the disease will run through a school or family. The nature of the contagion is still a matter of dispute. It is probably a parasitic disease, but the parasite remains undemonstrated. Unhygienic conditions are predisposing causes.

The globular nodule of molluscum contagiosum consists of the central waxy plug surrounded by clumps of epithelia that suggest the lobulated structure of the sebaceous glands. The waxy substance consists of degenerated epithelia and fat globules. In this debris are found a number of oval, epithelium-like bodies, that have a glistening appearance and do not stain in the same manner as the surrounding epithelia. They are the so-called "molluscum bodies" that were formerly regarded as parasites (*psorosperms*) and the cause of the disease. Most pathologists now regard them as mere degenerated epithelia. Another debatable point is the origin of the epithelia that constitute the molluscum. The sebaceous glands, the hair follicles and the surface epithelium have all been described as the starting points of the growth; at present the theory of origin from the surface epithelium is accepted. A proliferation of the epithelial cells in the lower layers of the rete is the first part of the process and the growth is confined to the rete.

DIAGNOSIS.—The common location on the face, neck or genitals, pea-size, waxy appearance, and central opening from which a soft substance can be expressed will distinguish the lesions of molluscum contagiosum from all

other eruptions. When small they might be mistaken for *milium*, but the presence of a central opening or umbilication, which is never found in *milium*, will serve to exclude the latter. All *vesicular* eruptions may be excluded by picking the growth and ascertaining that it does not contain serum.

TREATMENT.—While treatment should be prompt on account of the probable elements of contagion in the lesion, it is to be kept in mind that these growths usually disappear spontaneously in time without leaving scars; therefore, no radical method should be instituted which is at all likely to result in scar formation. An effectual procedure is to *incise* the growths just enough to permit of their contents being easily expressed. Neither the incision nor pressure gives much pain, and after the bleeding stops the only after treatment needed is an occasional dusting with some antiseptic powder, such as *boric acid*, or *salicylic acid* one to ten parts of talc. When the lesions are small they may be touched with *carbolic acid* on a pointed toothpick; or, if numerous as well as small, they may be rubbed vigorously twice a day with *green soap*, or a five per cent. *resorcin* or *salicylic acid* ointment. *Kali iod.* is indicated in some cases.

The **PROGNOSIS** for cure is always favorable, but cases vary in their duration.

MULTIPLE BENIGN CYSTIC EPITHELIOMA

(*Epithelioma adenoides cysticum*; *Adenoma of the sweat glands, etc.*)

In this rare disease are combined the minute structure of an epithelioma with the clinical history of a benign growth. As implied in the name, the tumors are multiple. They are found scattered more or less thickly over the face, chest and back. **The tumors appear in the form of nodules varying from the size of a millet seed to that of a large pea. The color is that of the surrounding skin, or the nodules may be yellowish and present the distended and shining appearance of a vesicle.** On *microscopic* examination the tumors are found to consist of fibrous tissue containing solid masses of epithelial cells, some of which are arranged in the whirls that are so frequently found in squamous-celled epithelioma. In multiple benign cystic epithelioma many of the epithelia undergo colloid degeneration; it is these masses of translucent colloid substance that give the tumor the appearance of a vesicle distended with serum. The connective tissue in which the epithelia are imbedded does not present the intense infiltration of round cells that is usually found in malignant epithelioma. Differentiation between the malignant and the benign form, however, cannot be made by microscopic examination, so closely do they resemble each other.

The *origin* of the epithelial new growth has not been determined. Fordyce seems to have traced it to the epithelia of the hair follicles, while Darier had previously declared that the new epithelia sprang from the sweat glands. Unlike the true epithelioma, multiple benign cystic epithelioma never ulcerates.

It causes no pain or other subjective symptom, there is no enlargement of the neighboring lymph glands nor development of cachexia. The growth seems to have no effect upon the general health. Its *cause* is unknown. In two instances the occurrence of several cases in the same family has been reported.

They may be TREATED by *incision* and expressing of their contents, or by removal with the dermal curette. A small, slightly depressed scar is left after healing of the wound. *Electrolysis* may be of service for the smaller growths.

ADENOMA

(*Végétation vastulaire; Nævi vasculaires et papillaires; Adenoma sebaceum; Adenoma of the sebaceous glands.*)

Adenoma is a neoplasm consisting of newly formed gland tubules and acini, together with the requisite supporting connective tissue and blood-vessels. When occurring in the skin adenomata grow almost exclusively from the sebaceous glands; the sweat glands seem to enjoy nearly complete exemption from the development of new growths, either malignant or benign. Several cases of true neoplasms have been recorded which appeared to the observer to arise from sweat glands, but the proofs of such origin are not conclusive. That rare disease that was formerly known as hydradenoma, or adenoma of the sweat glands, is now regarded as originating in the epithelia of the hair follicles, and is here classed and described as multiple benign cystic epithelioma. Practically, all adenomata of the skin are included in the name adenoma sebaceum.

If we exclude sebaceous cysts or wens from the category of adenomata, adenoma sebaceum becomes an infrequent disease. Nearly all the recorded cases have been observed in dispensary practice, that is, among the poor, and Crocker believes "the disease is of congenital origin, and all the marked cases show intellectual inferiority." The tumors are multiple and occur upon the face, especially upon the side of the nose and in the naso-labial fold. They occur as small papules which are often of a bright red color from the numerous distended capillaries they contain; for this reason they were given the name *végétations vasculaires* by Rayer, and *nævi vasculaires et papillaires* by Vidal. In other cases the color is that of the normal skin. The substance of the papules undergoes cystic degeneration, forming a minute point of sebum-like substance.

DIAGNOSIS.—There may be a resemblance to multiple benign cystic epithelioma, rosacea and colloid degeneration of the skin. Adenoma sebaceum may be distinguished from *multiple benign cystic epithelioma* by the distribution of the eruption; the benign epithelioma occurring on the arms, back and chest as well as upon the face, while in the adenoma the papules are confined to the face and are apt to be grouped at the side of the nose. To make an exact diagnosis, microscopic examination is required. From *rosacea* papules by the

early history, slow evolution and stationary behavior of adenoma and an absence of tendency to suppuration. From *colloid milium* by the tendency of adenoma to be situated about the nose and lower face, its more numerous and reddish lesions with associated telangiectasis. While the colloid growths usually occupy the frontal and orbital regions, are rarely numerous, have a yellowish translucent look and an absence of dilated capillaries.

PROGNOSIS.—Permanency is a feature of these growths. Rarely partial involution has been noted in some lesions, but more often the number has increased, and after removal they tend to return.

TREATMENT.—Failure rather than success has attended local measures of treatment thus far. Crocker has effected a cure in one case where the lesions were small by *electrolysis*, and greatly improved another where the lesions were larger by *excision*. Pollitzer has cured one case by repeated *multiple scarifications*, and the author has cured one by *curetting*, followed by repeated *cauterizing* with carbolic acid. *Thuja* first decimal was given to the patient internally before the employment of the curette, and it is quite possible that an indicated tissue remedy like *Fluor. acid* bearing some relation to the probable origin and pathological character of the disease might aid in its cure when administered internally.

LEUCOKERATOSIS BUCCALIS

(*Leucoplakia*; *Ichthyosis lingua*; *Psoriasis linguae*; *Smokers' patches of the mouth*, etc.)

The above title was given by Besnier and Donyon to conditions of the mucous membrane first described by Bazin in 1868. It nearly always occurs in the mouth of men and commonly after middle life, but has been observed in the female in the mouth and on the vulva. The chief sites of the disease in the mouth are the inner surface of the cheeks on a line with the junction of the teeth when pressed together; the gums adjacent to the lateral incisor and canine teeth; the mucous fold alongside the floor and roof of the mouth and gums; the edges and dorsal surface of the tongue.

The *lesions* consist of variously shaped glistening, bluish to ivory white patches, which feel more or less rough to touch with the finger or to contact with the patient's tongue and are sometimes warty or fissured. They may excite salivation, lessen the mobility or give a sense of stiffness to the part, but are seldom painful unless they become dense enough to form deep cracks and excite some degree of inflammation. The latter condition may give rise to soreness and pain, lead to ulceration and sometimes to cancer of the part.

The *course* of leucoplakia of the mouth is usually very slow, often taking years for its full development and commonly proving very resistant to treatment, though rarely the lesions may undergo resolution without local applications. They may or may not recur after complete removal.

ETIOLOGY.—Probably most cases originate from repeated irritation or from previous disease; occasionally no assignable cause can be found. Most subjects of this disease smoke or chew tobacco and it is believed to this habit its origin is frequently due. Irritation from broken or decayed teeth is a local factor in some cases, while syphilis, lithæmia, psoriasis, gastro-intestinal disorders and neurotic disturbances are conditions to which the disease has been attributed.

PATHOLOGY.—The pathological changes consist of hyperkeratinization of the more superficial epithelium and inflammation of the papillary layer of the corium, but which is primary is unknown. The cells of the horny layer which is hypertrophied retain their nuclei; while in the derma is found infiltration and partial obliteration of the papillæ.

DIAGNOSIS.—*Lichen planus* of the mouth may closely resemble this disease, but lesions of the former usually occur in disk, linear, festoon or ring shapes, of a silver whitish color and not always occupying the points of election of the latter. Moreover, characteristic lichen papules or their effects may be usually found on the skin. *Syphilitic patches* of the mucous membrane may be distinguished from leucokeratosis by their softness, quicker development, tendency to ulcerate. A history of syphilitic infection and subsequent eruptions on the skin, etc., may also aid diagnosis.

PROGNOSIS.—The great majority of cases prove amenable to treatment because they follow the necessary advice. For all others, an epitheliomatous development is possible.

TREATMENT.—Causal methods are usually essential to cure. Total abstinence from tobacco or irritating articles in food or drink should be strictly adhered to by the patient. The teeth should receive every necessary attention if found to stand in causal relation to the lesions. Any existing departure from health should be corrected by physiological living and other remedial treatment adapted to the general or special needs of each case.

Locally, *excision*, *nitrate of silver* and other caustics, the *galvano-cautery*, *erosion* with the dermal curette or with the *dental burr* and engine, application of *lactic acid*, one per cent. of *chromic acid*, one-half per cent. solution of *corrosive sublimate*, two to five per cent. of *bichromate of potash*, five to thirty per cent. of *salicylic acid*, etc., have been employed with some degree of success in different cases. The author has seen the best effects from mild applications calculated to soften the hardened epithelium and lessen inflammation. A twelve per cent. *boroglyceride* containing half of one per cent. of *menthol* applied once or twice daily is a serviceable preparation. The curette has been used occasionally to scrape away loosened corneous epithelium. In one case which did not respond to the foregoing, *carbolic acid* was applied several times at weekly intervals for its mild caustic and stimulating effect with good result. Hyde reports good results in two cases from *radiotherapy*.

Apis, second decimal, and *Rhus tox.*, in the same attenuation, have been verified as remedies. An indicated drug should always be prescribed.

C. MALIGNANT EPITHELIAL GROWTHS

CANCER

The term cancer includes all those neoplasms that are caused by the invasion of the lymph spaces of a tissue by growing epithelial cells. All forms of cancer are malignant; that is, they often recur after removal, invade the surrounding tissues, are reproduced in other parts of the body and tend to destroy life.

Cancers of the skin are divided into *epithelioma*, *rodent ulcer*, *Paget's disease* of the nipple and *carcinoma cutis*. Rodent ulcer and Paget's disease are now regarded as peculiar varieties of epithelioma. Carcinoma cutis might well be considered under malignant connective tissue growths, because it principally involves the connective tissue, secondary to its primary appearing in some deeper structure, but because of its pathological relation to other cancers, it is considered with the malignant epithelial growths.

In dermatology the name epithelioma (epithelial tumor) is still reserved for those neoplasms that arise from the epithelia of the skin or mucous membrane as distinguished from those forms of cancer that originate beneath the skin and attack the skin secondarily, as cancers of the breast or parotid gland.

EPITHELIOMA

(*Cancroid; Epithelial carcinoma; Epithelial cancer; Skin cancer.*)

Epithelioma or cancroid ulcer is the variety of cancer that comes most frequently under the observation of the dermatologist. Helmuth states that, in his experience, it is the most frequent of all cancers. It may occur upon any part of the body, but develops with greatest frequency upon the lower lip, tongue, face, penis, os uteri and female genitalia.

Epithelioma begins as a small papule or warty elevation which may remain stationary for a number of years. The surface of the papule may be smooth or fissured, and it may be covered with a thin crust that persistently reappears after removal. After a longer or shorter time the papule ulcerates at the centre. **As the ulcer enlarges, elevation and induration of the skin precede it so that the margin of the ulcer is always elevated and hard, and often nodular.** The hardness and elevation are very characteristic of epithelioma, and are due to the distension of the lymph space of the corium with growing epithelia. In its early stage the ulcer is often covered by a dark crust, consisting of dried blood and serum. Later on, the discharge is quite profuse and the ulcer bleeds with the slightest irritation. When ulceration begins the pain is frequently intense; it is usually burning and often worse at night. Intense lancinating pains may be also present and quite characteristic of this growth.



EPITHELIOMA

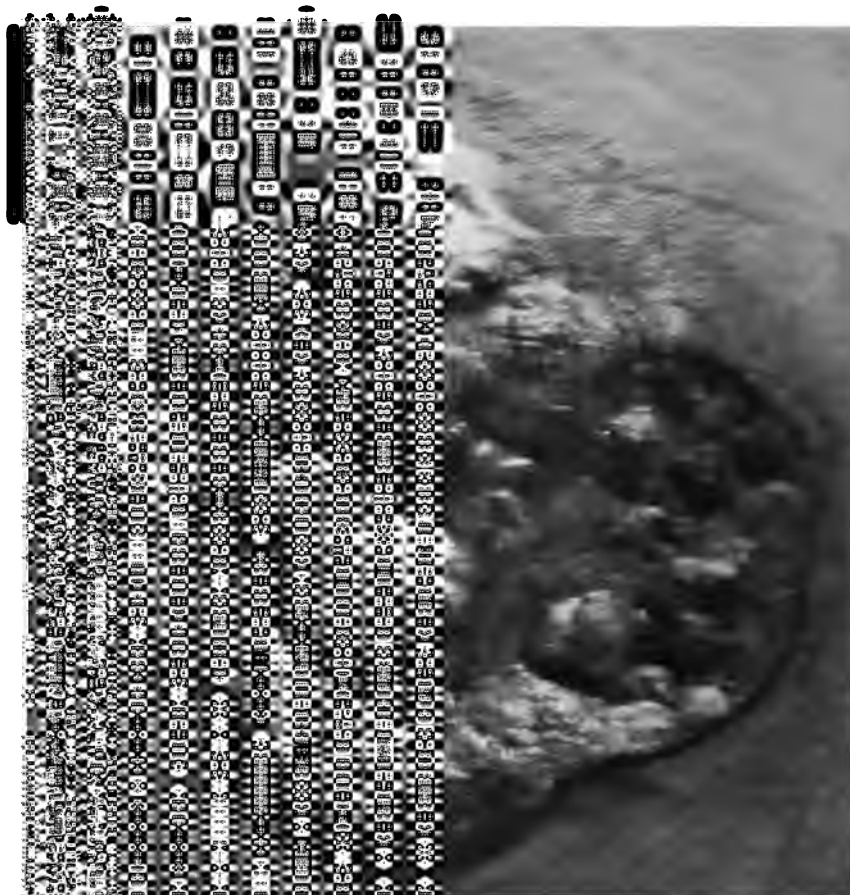
TREATMENT



EPITHELIOMA

ACUTE, MALIGNANT TYPE

...bercular family history. At the age of ... glands in the affected areas. Later she ex- ... the lower lip and extending into the sub- ... month later the glands were larger, and what ... lower lip. In three months the growth pre- ... out, when a diagnosis of epithelioma was ... crust was removed and a sixty per cent. ... was removed twenty-six hours later. ... ing, restlessness, œdema beneath the eyes, ... swelling of the glands followed. *Arsenicum*, ... with the result depicted in the second ... (Courtesy of Dr. George Royal.)



EPITHELIOMA

Duration of disease, three years. Loss of weight, 15 lbs. Represents about the exact size and shows the results of the microscopic examination verified the clinical

These epitheliomata that spread on the surface and do not burrow deeply into the tissues are classed, clinically, as *superficial* or *discoid epitheliomata*. The initial papule may be quiescent for ten or twenty years before ulcerating; the ulcer enlarges slowly and the lymph glands remain long unaffected. Those epitheliomata that grow rapidly, ulcerate early and eat deeply into the surrounding tissues are called *deep-seated* or *nodular epitheliomata* from the fact that the initial lesion is frequently a nodule buried in the skin of the mucous membrane rather than a papule. Nodular epitheliomata may form early metastasis in the lymph-nodes and internal organs, the patient pass into the weak, anæmic and emaciated state known as the cancerous cachexia, and death soon follow.

Occasionally the superficial form is characterized by papillary growths on the surface, which may also give it a granulated appearance, or the outgrowths may assume warty, cauliflowerlike or even pedunculated shapes. Such cases have been called *papillary epithelioma*. Later in its course when ulceration occurs it resembles the nodular form. Chimney sweepers and workers in paraffin and tar sometimes develop on the scrotum or other parts of the skin a dermatitis which may ultimately become the seat of epithelioma. These have been termed *chimney sweep's cancer*, *paraffin cancer*, etc.

RODENT ULCER.

(*Jacob's ulcer; Cancroid ulcer; Ulcus exedens; Noli-me-tangere.*)

Rodent ulcer or Jacob's ulcer is a form of epithelioma characterized by almost absolute limitation to the upper part of the face, slow course, painlessness, slight new growth in proportion to the ulceration, and the absence of metastasis or cachexia.

It is found most frequently on the eyelid and near the eyes. It commences as a small, soft, brownish or reddish nodule, about one millimetre high, that spreads slowly outward. A thin crust often forms over the growth. After a time the crust falls off, leaving a smooth, red, superficial ulcer. In the end the ulcer destroys the eye and even the bones of face and skull, but it lacks the elevated, indurated and nodular border, the free discharge, the fungous growths, the metastasis and cachexia that would be present in a typical epithelioma of equal extent.

While rodent ulcer is undoubtedly an epithelial new growth, observers differ as to the origin of the new cells. Unna derives them from the rete Malpighi, Thiersch from the sebaceous glands and Thin from the sweat glands, while Darier states that they may come from any or all of these structures.

PAGET'S DISEASE OF THE NIPPLE

Maligant papillary dermatitis; Mamillaris maligna; Eczematous epitheliomatosis of the nipple, etc.)

This is a variety of epithelioma first described by Paget in 1874. It occurs almost exclusively in women and usually attacks the areola of the right breast. In the early stage a well defined, intensely red, granular looking patch forms on the surface, from which exudes an abundant viscid secretion. As the disease progresses the affected surface may be covered with scales or crusts, and the itching or burning sensation give a subjective as well as an objective resemblance to eczema. From a small round lesion half an inch or less in diameter, the disease may extend uniformly or less regularly until all of the areola and a portion of the surrounding skin is invaded. After a variable duration running into years, a deepening infiltration occurs into the whole thickness of the skin beneath the surface lesion and which can be appreciated by pinching the skin between the thumb and fingers. Following the induration, perhaps weeks or months later, the tumour becomes more and more retracted, and if the process is not arrested by treatment nodular growths in the skin or deeper parts may develop, and the usual train of symptoms of cancer of the whole breast ensue.

The duration of the disease varies widely from four to twenty or more years. One case in a woman of seventy, under the author's observation during the last year of life, when the whole breast was involved, gave a history of the disease as a small lesion three years before; a duration of four years occurring in half from California. In another case induration was apparent at the end of two years, but was arrested by treatment without further development.

As to the nature of Paget's disease in its evolution becomes an epithelioma, authorities differ, some as to its primary nature, some believing it begins as a carcinoma, others as an eczematous type of inflammation, while later investigators are inclined to view it as epitheliomatous from the start. Cases of the disease of the breasts and axilla, and one case on the nipple of a man, have been recorded. Black states that in such cases the process is identical with that of carcinoma of the breast.

Efficient cause of the disease.—The efficient cause of epithelioma is unknown. The disease has been observed to follow prolonged irritation, inflammation or degeneration of the skin or mucous membrane. Thus a sharp or chronic irritation, such as the tongue as to finally excite an abnormal growth of the epithelium, is the cause of this disease. In a like manner the disease may arise from the habitual pressure of a pipe stem on the lip or tongue; the removal of a wart or other benign growths, or from scratch-

ing to relieve chronic pruritus. The prolonged inflammation in a lesion of psoriasis or from an ulcer; and long or repeated contact of irritating substances with the skin, such as soot, tar, paraffin, etc., may be the apparent cause. Men are more subject to epithelioma of the lip than women, due to the difference of the sexes in the one habit of smoking. More than ninety per cent. of all cases of cancer of the lip have occurred in smokers of tobacco, while the very few women who have suffered from cancer of the lip have been smokers. Heredity is believed by Lewis to be a minor influence, and the disease is rare under thirty, though occasionally a malignant type of cancer is observed in young people. After middle life the tendency to the disease increases with age, and Thiersch has sought an explanation of this predisposition in the wasting of the connective tissue of the skin in older persons and a subsequent lessening of the barrier to the ingrowths from the epidermis. The more common development of epithelioma on parts exposed to the air or touch, the occurrence of metastasis and the observation of a few cases where secondary growths have followed from the contact of the secretions from a cancer indicate that it may possess an element of contagion at present unknown. The chief recognized factor in the causation of epithelioma may be briefly summed up as *chronic irritation* of some part of the surface tissues predisposed to abnormal growths of epithelium, sometimes from hereditary influences, but more often from conditions acquired by age. A specific parasite will doubtless be discovered as time goes on.

PATHOLOGY.—All varieties of epitheliomata have their origin in pre-existing epithelium. Briefly stated, there is a proliferation of epithelial cells from the epidermis or mucous membrane or from the epithelium of the hair follicles or glands. This growth extends downward into tissues where it is not normally found and inflammatory conditions are thereby induced. Histologically speaking, two main types may be considered, the lobulated and the tubular. The former, which is more frequent, consists of a massing of the new growth in the form of lobules, each one of which is composed of concentric strata of cells—from those of the rete to those of the corneous layer. Only imperfect cornification can be noted in the innermost cells which from pressure form the cell nests or onionlike bodies. In the tubular type, the new growth takes the form of cylindric processes which anastomose with each other. The cells are smaller than the constituent ones in the lobulated variety, and there is no tendency to horny changes or to the formation of cell-nests. Rodent ulcer is, pathologically, a tubular epithelioma. All of the so-called micro-organisms which have been reported to date appear to be due to cell degeneration.

DIAGNOSIS.—If the characteristic features of epithelioma are brought to mind there will seldom arise any difficulty in diagnosis. The frequent occurrence of epithelioma in or after middle life usually beginning at a site of election, often also of some surface irritation, of a papular or nodular growth, its early or late transformation into a chronic ulcer with firm, elevated, everted or undermined edges, frequently attended with lancinating pains, are the

distinguishing points. It may need to be differentiated from lupus, syphilis, tuberculosis orificialis, verruca senilis and papilloma.

Lupus vulgaris begins in early life, as a rule, exhibits soft brownish tubercles, pursues a slow chronic and often painless course, while epithelioma commonly begins in late life, does not develop soft tubercles, may pursue a relatively rapid course and is usually attended with lancinating pains in the ulcerative stage.

The primary sore of *syphilis* when situated on the lips or tongue is more acute in course and attended with an earlier swelling of the neighboring glands than epithelioma. The appearance of the secondary eruption or other signs of syphilis would remove all doubt. From the ulcerating syphilide an epitheliomatous ulcer is distinguished by its firm, waxy and elevated edges, single lesion and finally by an absence of any tendency to heal and a failure to respond to specific internal treatment.

A *tuberculous ulcer* of the mouth, lips or other orifice may be distinguished from epithelioma by its soft border, the presence of miliary tubercles in the adjacent mucous membrane and by the evidence of internal tuberculosis.

Seborrhæal warts and papilloma in elderly individuals are not always easily differentiated from the early stage of epithelioma, as it is known that they may become the seat of the latter. Any induration about the base of a wart in senile life, and especially if attended with pain, should arouse a suspicion of the development of cancer.

The characteristic features of rodent ulcer and Paget's disease will easily distinguish them from all other forms of skin disease.

PROGNOSIS.—Superficial epithelioma before the lymphatics are involved may be usually cured. After the lymphatics have distributed the seeds of the disease and sometimes in the deeper nodular forms, a cure is not to be expected. Though some cases are rapidly fatal, many continue without impairment of the general health for years.

TREATMENT.—The methods employed may be governed somewhat by the location and extent of the disease, and often by the facilities at hand.

Radiotherapy when applied to cases in which there is no involvement of the lymphatic system is a valuable therapeutic measure. It is often permanent in its effects, especially when used for the rodent ulcer type; the cosmetic results are excellent; and it is a painless method and not tedious. Hyde reports no failures among the cases of superficial epithelioma treated by him, and in a total of 125 cases treated with the X-rays, 102 are free from the disease. The majority of these were of the rodent ulcer type. This opinion is verified by the clinical experience of many observers, both in this country and in Europe. The best method includes the use of a medium hard tube at a distance varying from four to ten inches, exposures lasting from two to twelve minutes, applied every alternate or third day. The whole course of treatment seldom exceeds three months. Some few cases of Paget's disease have been reported as cured by the X-rays.

Phototherapy has been used by Finsen, Petersen and others with distinct

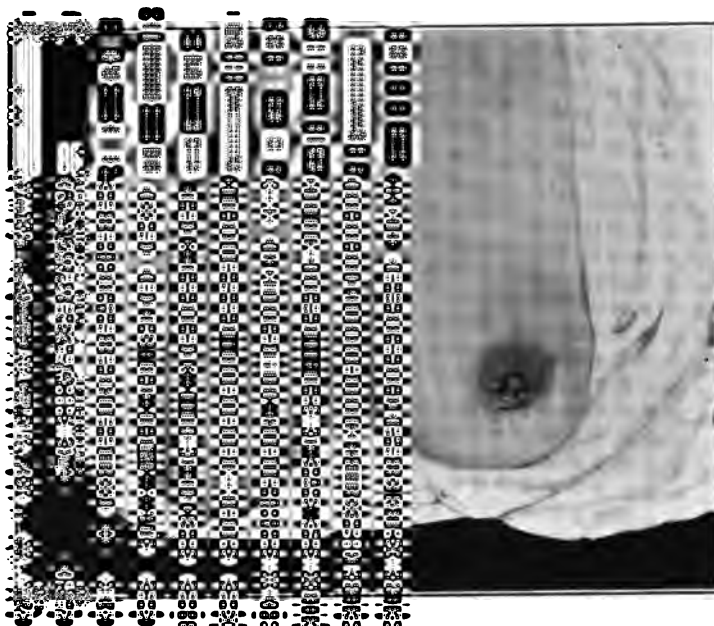
effect on superficial cancer of the skin in the early stages. This method can hardly be said to be superior in any respect to the one just outlined. The editor can report that *radium-barium* chloride with an activity of 25,000 caused the disappearance of three cases of discoid epithelioma appearing on the mucous membrane of the mouth, of the lower lip and of the palpebral conjunctiva. These lesions were of long duration and did not yield to any previous method of treatment. The tube containing the radium was applied directly to the diseased surface for an interval of five to thirty-five minutes, daily, and the number of treatments received was ten, forty-one, and nineteen, respectively. From personal observations of over fifty cases of epithelioma (not of the mucous membrane) which received radium, in power varying from 5,000 (French) to 200,000 (German measurement) radio activity, it is safe to state that the efficacy of this agent will be greatly increased when a larger supply of a definitely known and greater power can be procured. W. H. King has lately been experimenting with celluloid pencils coated with radium. These are introduced into the growth and permitted to remain for forty-eight hours, then two days are allowed to elapse and the treatment is repeated. As yet, nothing definite can be said concerning this method.

The *high-frequency currents* have been employed successfully by Pearsons and Rivière. The Oudin resonator is the type employed, and the editor has seen good results from its temporary use in stimulating epitheliomatous ulcerations, but never has he observed a cure from this method alone.

For many cases of epithelioma, topical measures, such as excision, erosion and local destructive agents, may be advised. The small superficial forms which have begun to ulcerate may be thoroughly scraped with a dermal curette, either with or without the previous use of cocaine, the consequent bleeding arrested by pressure and the surface covered with *pyrogallie acid* crystals. This causes almost immediately a watery exudation from the surface and the appearance of a black deposit which later forms a complete crust. This can be allowed to remain in place for three to six days, then removed, the parts thoroughly cleansed with water as hot as can be borne and the application renewed. If irritation arises from this treatment, a simple dressing with *aristol* or *nosophen* powder may be substituted until the irritation has subsided or an ointment of pyrogallie acid, ten per cent., may be substituted for daily use. In most cases this method of treatment is unattended with pain and if the curette is used to scrape away the diseased tissue before each weekly or semi-weekly dressing, it is very effective in many cases. If unusual irritation arise pyrogallie acid in any form should be discontinued and a simple ten per cent. *boric acid* ointment employed until all signs of irritation have disappeared. The latter ointment may be used also during the process of healing after the destructive application is no longer needed. *Thuja*, one part, to two of fresh lard or glycerine, can be employed with good effect in some cases, especially if papillary in character. This remedy may be given internally at the same time. *Phytolacca* is another substance which may be used locally and internally at the same time. For local use the expressed juice of the fresh leaves, which has

been allowed to evaporate until it has the consistency of a thick paste, is the best form; when not available, a five to twenty per cent. ointment can be employed. The diseased surface may be covered with this and allowed to remain for eight to ten hours, according to the degree of pain and the endurance of the patient. Then it may be removed, the surface cleansed with hot water and again applied. Under this application healing often begins at the periphery and the extent of the application should be reduced as the healing progresses. While considerable pain is experienced from the application, it is not as severe as from some other methods of treatment. *Phytolacca*, second or third decimal, should be given internally at the same time.

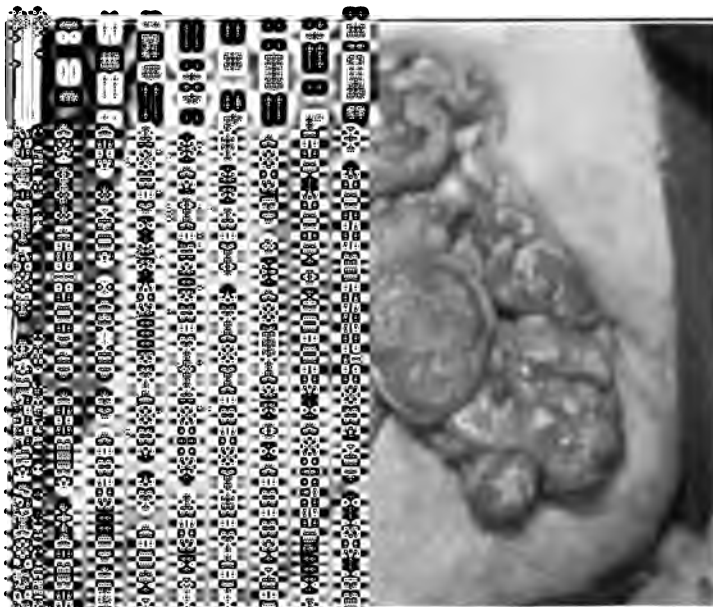
Arsenic has long been known to have an elective affinity for morbid epithelial growths, both from external and internal use. One of the best preparations is that first suggested by Cerny and Trunecek. This consists of powdered arsenious acid, one part to eighty to one hundred and fifty of a liquid containing equal parts of absolute ethyl alcohol and distilled water. It is applied in the following manner:—The ulcer is cleansed (perfectly with very hot water) and if necessary scraped with the curette, bleeding controlled by pressure, and the mixture shaken and applied with a brush or cotton wrap over the whole surface of the growth. This is allowed to dry; then another layer is spread over the part and is repeated daily thereafter. No further dressing is required. As a rule, very little pain is felt from this application if the weakest preparation is used, which should always be the case with the first trial. Occasionally the application causes considerable œdema of the surrounding parts of the skin, and then should be suspended until the swelling has disappeared. The crust which appears from this application is usually thin, first yellowish, gradually becoming brown and, finally, black. Later the edges loosen and a darkish fluid oozes out from the edges of the ulcer. Treatment, however, is continued until the eschar is loosened and non-adherent to the subjacent tissue, when it can be easily removed. Then the parts may be thoroughly cleansed with hot water and the application renewed. So long as a dark crust forms treatment is continued. If only a yellowish crust forms it indicates that all the cancerous tissue has been destroyed. In some cases the one hundred and fiftieth solution is sufficiently strong for the whole treatment, but as a rule the amount of arsenic should be increased first to one to one hundred and if necessary one to eighty. When all signs of the cancerous tissue have disappeared, the surface may be treated with boric acid ointment before mentioned. This application is also effective in some cases of epithelioma before ulceration has occurred. As it does not act on corneous epithelium a small portion of the central part of the growth should first be removed with the curette or scissors, after which the mixture can be used as before described. The use of arsenic in this form has the advantage that it can be applied by the patient daily if unable to visit the physician at so frequent intervals. The author and editor have used this method in fifteen cases with very satisfactory results; in one of them the growth first originated on the nose and had spread to the lower eyelid. Very often small warty patches of



DISEASE

DESCRIPTION

Disease began two years ago as a small nodule. In a year small nodules have appeared in the areolar region. The nodule has become retracted and more recently a slight depression has appeared. One or more nodules. The glands of the areolar region have been quite common and often worse than the areolar glands. The disease is decimal, internally and the local appli-



CINOMA CUTIS

ER OF THE BREAST

had her left mammary gland removed by
 ear the disease appeared in the skin near
 its present dimensions. Indicated drugs,
ch., *rhus tox.* and *nit. acid*, have seemed to
 the destructive process and prevent cachexia
 (T. F. Allen.)

suspected epithelioma may be softened first by painting them with a five per cent. *salicylic acid* collodion for six or seven consecutive days. The collodion shell can then be peeled off and will usually bring some of the growth with it. When sufficient has been removed, the solution of arsenic before mentioned can be employed, or one of the other preparations, such as thuja, phytolacca or pyrogallol.

Among the stronger preparations of arsenic is *Marsden's paste*, which consists of equal parts of arsenious acid and pulverized gum acacia thoroughly mixed together. When ready for use sufficient water is added to make a paste. It needs to be accurately applied for ten to twenty hours. Severe pain usually results from its use and some patients will not bear the suffering many hours. As soon as it is removed a poultice should be applied and renewed occasionally until the crust separates, when a simple antiseptic ointment may be used thereafter. An *attenuation of arsenic* should always be given internally when arsenic is employed locally.

Among other preparations which have been employed for the local destruction of cancerous tissue are a fifty per cent. solution of *acid nitrate of mercury*, *terchloride of antimony*, *lactic acid*, a solution of *formalin*, a strong solution of *resorcin*, *caustic potash*, *chloride of zinc*, *fuchsin*, *pyoktanin*, and solid *nitrate of silver*. They are none of them probably more efficient than the arsenic and other preparations named, and nearly all of them produce considerable suffering, necessitating the use of cocaine, chloretone or other local anæsthetic.

Milder local procedures have their advocates, who have also reported success therefrom. Vidal and others have employed a saturated solution of *chlorate of potash* in warm water and glycerine. This was applied frequently to the ulcer, followed by a dressing with simple ointment. The drug was at the same time given internally in some cases. Another measure consists in "par-boiling" with *borated water*, kept as hot as can be borne. It is applied and constantly repeated for fifteen minutes or longer every three to four hours during the day for several consecutive weeks. After each treatment the surface is dried and dusted over with aristol or other iodine powder, or covered with simple ointment. If good effect is produced it is likely to be manifested in some degree at the end of a week.

These methods are probably best adapted to large superficial lesions of the rodent ulcer type, or to the rare, widely distributed non-ulcerative growths, and only for patients who can command the necessary time and attention required, or who for some reason cannot tolerate more certain measures.

The *galvano-* and *thermo-cautery* have been employed for the destruction of epitheliomatous growths. It is claimed that the pain therefrom is transitory and that the resulting scar is not conspicuous. These methods are most effective when used after incision or erosion.

Epitheliomatous ulcers from nodular growth and Paget's disease require greater care in the selection of a local application, but preparations of arsenic or the acid nitrate of mercury are likely to be most effective. In all cases it

should be remembered that evidences of involvement of the ganglia in operable cases point to the immediate need of *surgical* procedures.

An indicated drug should always be prescribed, selected from the best symptoms obtainable in each case. Sometimes it may be one that can be locally employed. For these and other remedies see *Arsen.*, *A. iod.*, *Carbol. acid*, *Chel.*, *Conium*, *Cundurango*, *Euphor.*, *Hepar*, *Hydras.*, *Kali chlor.*, *K. phos.*, *K. sulph.*, *Kreos.*, *Lach.*, *Mer. cor.*, *Mur. acid*, *Phyto.*, *Sepia*, *Thuja*.

CARCINOMA CUTIS

Carcinoma cutis is that variety of carcinoma which, beginning in some **underlying organ**, invades the skin secondarily, as distinct from epithelioma which originates in the epidermis and its immediate prolongations. It is one of the infrequent forms of cancer. Such a condition is seen when a cancer of the breast approaches the surface and infiltrates the skin. Nodules develop that are appreciable to sight and touch. They may vary from the size of a pea to a diameter of two inches or more. They present the wooden hardness of cancer and the skin over the nodules is firmly adherent to them and immovable. The centres of the nodules are occasionally depressed. The **cancer en cuirasse** of Velpeau is such a carcinoma which spreads itself diffusely in the skin of the chest, sometimes down the arm. The affected skin presents the hardness of carcinoma and is occasionally nodular. Nearly all of these carcinomata occur in the skin over a carcinomatous breast, either before or after amputation of the primary tumor.

A still rarer form is described as **tuberoso carcinoma**, which occurs most frequently on the face of old people, but may develop elsewhere and at an earlier age. It appears in the form of nodular lesions, which are roundish, pea to egg-sized, firm, deep seated, flat or elevated and of a violet or brownish-red color. These growths remain discrete, but ulcerate, and may result in deep destruction of tissue. In fact, carcinoma cutis of any variety may ulcerate, the ulceration beginning in the centre of the nodule, as in epithelioma. The ulcers sometimes reach a remarkable size, and may, like epithelioma, present an indurated and elevated margin. Cachexia and metastasis to internal organs soon terminate life.

Pigmented carcinoma.—Nearly all pigmented tumors which develop from moles and nævi are of the carcinomatous type and not sarcomatous as was formerly believed. They may be single or multiple, soft or hard, localized or generalized, black, blue or slate-colored. grow rapidly, ulcerate easily and run a malignant course. It is probable that the transudation of pigment from the numerous blood-vessels that supply the new growth is responsible for the color. In any case, the pigment is found in the cell-protoplasm and between the cells. Burning or lancinating pains frequently accompany the onset and course of cutaneous carcinoma; occasionally only pruritus is present.

The **ETIOLOGY** of carcinoma is yet unknown. **PATHOLOGICALLY**, carcinoma

is epitheliomatous, the fibrous stroma holding small collections of epithelial growths.

The DIAGNOSIS of carcinoma cutis rests on its possible existence elsewhere in the body and a knowledge of the evolution of its cutaneous lesions. By careful comparison of differences and symptoms it can be distinguished from other growths, especially from the tubercles of *lupus*, *syphilis* or *leprosy*.

The PROGNOSIS is exceedingly unfavorable, though the advance of the morbid process may appear to be held in check by treatment for a comparatively long time.

TREATMENT.—*Operative* measures are indicated when possible; but when the growth is too extensive, the *Röntgen rays* should be thoroughly and carefully applied, because it is generally admitted that the pain and distress of internal cancer can be relieved and the progress of the disease arrested by this agency. Some cures have been reported.

The following drugs have been credited with arresting or mitigating the disease in some cases: *Arsen.*, *Carbo. veg.*, *Chelid.*, *Cundurango*, *Euphor.*, *Hydras.*, *Kali phos.*, *Kreos.* and *Phytolacca*.

D. MALIGNANT CONNECTIVE TISSUE GROWTHS

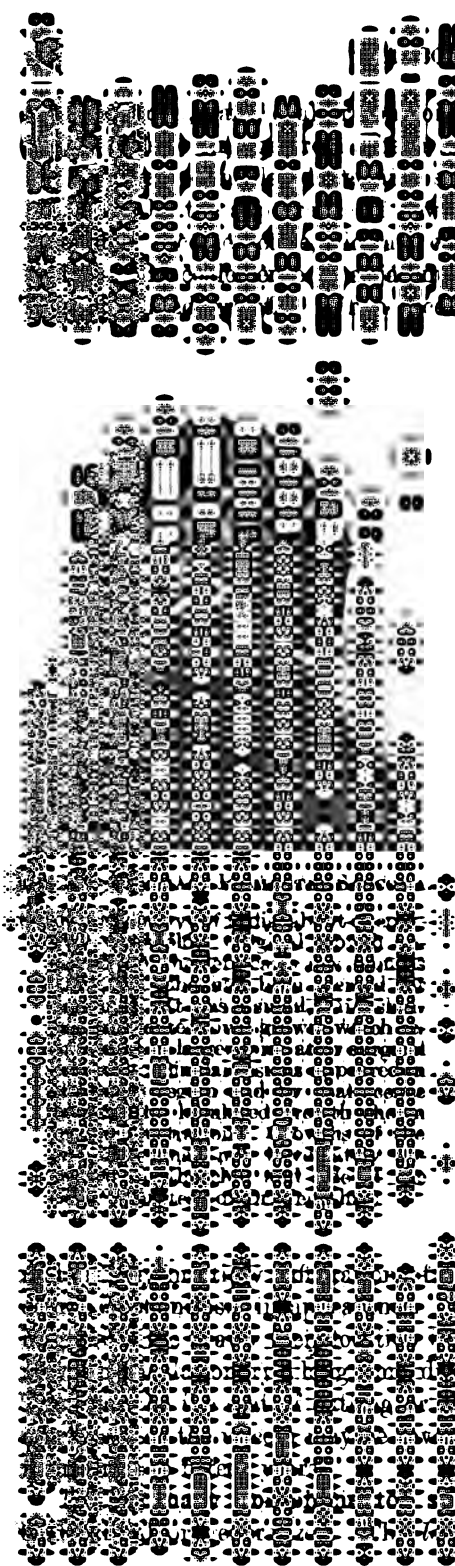
SARCOMA CUTIS

Sarcoma cutis is a rare disease which usually originates in the deeper portions of the skin and is essentially a growth from connective tissue with abundant development of vascular elements.

The involvement of the skin by sarcoma is more often secondary than primary. Sarcomas are frequently of a mixed type, but have been classed according to the form of individual cells as *spindle-celled* (fusocellular) sarcoma, *round-celled* (globocellular) sarcoma and *giant-celled* sarcoma. Quite commonly cutaneous sarcomas are divided into (A) pigmented and (B) non-pigmented varieties.

According to Unna, one may form an idea of the structure of the cutaneous sarcomata without histological investigation. "We may determine their fusocellular or globocellular character as well as the amount of fibrillary connective tissue from their firm or soft character, the amount of their blood-vessels from the deep red color and a certain degree of compressibility, and the amount of pigment from the very deep blue or bluish-black color. Soft spots or firm nodules point to cedematous or mucous softening and to future suppuration of the nodules."

(A) **Primary pigmented sarcoma** or **melano-sarcoma** is the more common form, and may develop from an irritated *nævus* or other pigmented point in the skin, but it may arise independent of any previous lesion. It begins as



A CUTIS

growth of a dark blue or blackish color a nut or egg size. It is usually sessile, stationary and stationary for a long time or lesions at near or distant points; one or even disappear without a break in the lesions they may assume the shape of a form they are irregular, with uneven floors, and discharge a blackish matter of variable consistency or sometimes pus. Through the lymphatics some vital organ is soon involved and death is not long delayed.

Melanotic whitlow is mentioned by Crocker as an insidious form described by Hutchinson, which develops as a chronic onychitis with slight pigmentation at the border of the nail like a "lunar caustic stain;" by gradual evolution it forms a fungating tumor without much change in color; the nail is shed and the disease soon becomes generalized.

Idiopathic multiple pigmented sarcoma first described by Kaposi is placed by some with non-pigmented forms because its color is due to cutaneous hemorrhages. It occurs chiefly in male adults, always begins on the hands and feet, and in two or three years may extend by discrete growths along the limbs to the face and trunk. Edema and pruritus precede the appearance of purplish or bluish spots, on which soon develop pinhead to bean-sized tender nodules of the same color, which remain discrete, gradually increasing in size, the skin progressively occurs until it becomes the growths are more numerous and of the distal end of the limb. The tumors appear by absorption, but rarely ulcerate. Radiating pains. Complete recovery may be followed and death result after a duration of

Sarcoma or *non-melanotic sarcoma* may be the *melanotic* form is quite rare, and like the

pigmented variety usually originates in an irritated nævus or warty lesion; it is situated most frequently on the extremities. The nodule which forms is firm, whitish or the color of the normal skin, though rarely red, and may reach the size of an orange, remain stationary for a variable period, then ulcerate and become fungoid in character. Generalization follows in time and may be accidentally excited by interference.

The *generalized* form occurs in multiple lesions on the extremities and chest, rarely on other regions, in the form of pea to egg sized, smooth, roundish, lobulated or irregular tumors, which at first may be subcutaneous, unattached to the supra-imposed epidermis and whitish or without change in color. They develop rapidly, and ere long the skin between the tumors becomes infiltrated, hard, uneven, glossy, of a bluish-red or erysipelatous hue, ulcerate at some points and discharge an offensive product. The nodules become attached to the skin and the parts beneath, coalesce in a few weeks, soften and form ulcers; finally death occurs from exhaustion or from involvement of the mucous membranes or viscera. This variety of sarcoma is acute in course and very malignant in type.

Crocker mentions a rare form of spindle-celled sarcoma which Hutchinson described as *recurrent fibroid of the skin*. It begins usually on the legs, and after an early slow growth advances rapidly, recurs quickly and persistently after removal, ulcerates, fungates, becomes generalized and finally leads to marasmus and death.

The ETIOLOGY of sarcoma is practically unknown. It may occur at any age, some of the most malignant forms having been observed in children, and according to Babes, it is often congenital. Piffard says sarcomata are more likely to develop before the fifteenth year and after the forty-fifth. Some believe the disease to be parasitic in origin. Jurgens, Loeb and others have produced sarcomatous tumors in rabbits, rats and mice by grafting bits of sarcoma into the tissues of these lower animals.

PATHOLOGY.—Sarcoma cutis is usually secondary to the disease in some deeper portion of the body. It is a connective tissue growth, made up of round or spindle cells, the latter being more frequent. The mixed forms, fibro-, angio- and lympho-sarcoma are occasionally found. Melanotic sarcoma is the commonest type, but Unna, Gilchrist, and others have demonstrated that a majority of these growths which develop from pigmented moles or warts, are really carcinomatous in character.

The DIAGNOSIS of sarcoma is generally not difficult, but in case of doubt, should be determined by a microscopical examination of the growth. Pigmented forms may be recognized by their color and history. Non-pigmented sarcoma may need to be distinguished from fibroma and epithelioma. The single variety lacks the induration which characterizes *epithelioma*. The multiple forms are firmer than *fibromata*, less often pedunculated and frequently undergo degeneration which never occurs in the latter. Sarcoma would hardly be confounded with *syphilitic gumma* or *lupus nodules*.

The PROGNOSIS of cutaneous sarcoma is nearly always bad. The duration

varies widely from a few months to many years, the pigmented variety being most rapid in its course to a fatal issue.

The TREATMENT of sarcoma is far from satisfactory. Excision may prove curative for the simple non-pigmented growth. Operative interference with other forms has not only failed but in some instances has served to promote generalization. *Arsenic* is about the only internal remedy on which to base any hope. The indications for it are few, and hence even the homœopathic dose must be large. A few cases have responded to hypodermic injections of Fowler's solution. Köbner successfully treated two cases with daily injections of this solution diluted with one or two parts of distilled water. The initial dose of two drops was gradually increased in four or five months to nine drops and was well borne. Inoculations with the *streptococcus toxine* have cured a few cases, but the method is attended with too much danger to be often justified. *Coley's fluid*, which is composed of the combined toxines of this streptococcus and of the bacillus prodigiosus, has achieved some success. Some cases have been and others undoubtedly can be cured by the *Röntgen rays*. They should be used after surgical treatment in all cases as a safety measure. *Radium* will possibly play an important rôle in the treatment of this disease when we are assured of a larger supply of greater activity.

MYCOSIS FUNGOIDES

(*Fibroma fungoides*; *Myeloma cutis*; *Inflammatory fungoid neoplasm*; *Ulcerative scrofuloderma*; *Granuloma fungoides*; *Multiple fungoid papillomatous tumors*; *Lymphoderma permiciosa*; *Sarcomatosis generalis*; *Multiple sarcoma cutis*; *Fungoid dermatitis*; *Eczema hypertrophicum seu tuberosum*, etc.)

Mycosis fungoides is a rare disease of the skin, somewhat resembling lymphosarcoma or the growths of leukaemia, and is characterized by the appearance of multiple red or purplish tumors that differ from other tumors in their variability, spontaneously disappearing at one point and reappearing at another.

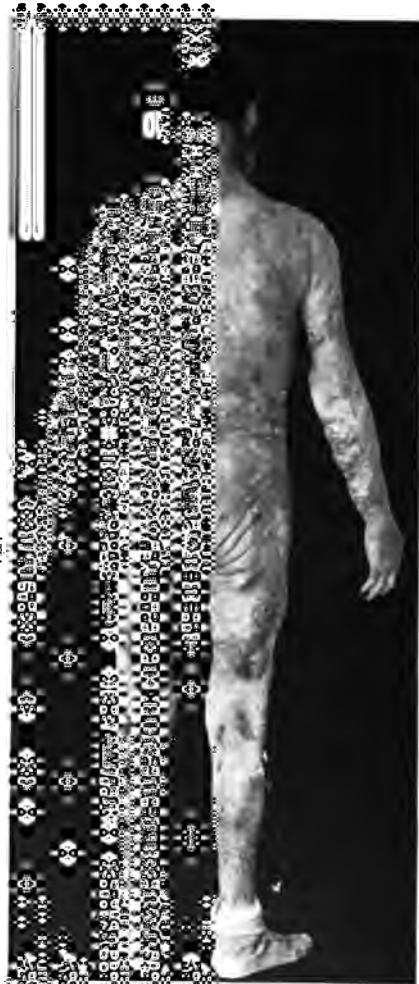
The cause of mycosis fungoides is unknown, though, as its name mycosis implies, it is supposed to be due to a vegetable parasite. The disease appears in adult life and runs a course of from three to eight years, almost invariably ending fatally.

The appearance of the reddish or purplish nodules may be the first indications of the disease, and these are the most severe cases. In most instances, however, there is recognized an early phase, called the urticarial or eczematoid or lichenoid stage, because of the appearance of an intractable urticaria, eczema or lichen. After the preliminary eruption has lasted for two or more years, the characteristic nodules appear. They may occur on any part of the body, develop slowly or rapidly into sessile or pedunculated tumors, of a red



FUNGOIDES

...e years. Duration, five years. Gen-
 ...ypical multiple red and purple tumors.
 ...ent during the first three years of the
 ...including the most careful and per-
 ...the X-rays, failed to benefit, and the
 ...Harlow Brooks.)



ERYTHEMA MULTIFORME

Subject depicted in Fig. 134.

or purplish color, and vary in size from a pea to an orange. The tumors tend to group together and sometimes increase or decrease in size in a remarkably short time. They are apt to discharge a foul-smelling, serous fluid, and frequently they ulcerate and bleed freely. There is, at times, intense itching of the skin over and around the tumor as well as in the premonitory eruptions. On the development of ulceration, the health of the patient rapidly declines, intractable diarrhoea sets in and the exhausted system finally succumbs.

ETIOLOGY AND PATHOLOGY.—The disease is not known to be contagious or infectious. It occurs almost exclusively in adults and more often attacks men in middle life. Blanc reported finding in one case a diminution of red blood corpuscles and a marked increase in the number of white cells, giving a relative proportion of one to one hundred and thirty as compared with the normal of one to three hundred and fifty or five hundred. From this and a histological study of the growths in this case, Blanc concluded it was probable that the disease was related to the lymphatic system. The minute structure of these tumors consists of small round cells imbedded in a delicate fibrous matrix. It resembles round-celled sarcoma and lymphosarcoma and also the infective granulomata. As yet its exact nature has not been determined.

DIAGNOSIS.—The prodromal eruptions of this affection may resemble the more common diseases, such as eczema, psoriasis or lupus erythematosus. Generally the absence of some diagnostic feature of these diseases will afford ground for doubt. For instance, patches of *eczema* are not sharply defined or so persistent and usually give rise to more discharge; *psoriasis* seeks the extensor surfaces and *lupus erythematosus* the face; the latter is usually unattended with much itching, but often with atrophic scarring.

After the tumor-like growths develop and their variable manner of coming and going, etc., is noted, little difficulty will be found in differentiating them from other neoplasms of the skin. *Multiple pigmented sarcoma* is thought by some to be closely related if not the same disease. The form of sarcoma, however, is not preceded by eczematoid eruptions; pruritus is exceptional and the tumors disappear by ulceration and not by resolution, as may be the case in mycosis. *Syphilitic tumors* are not attended with itching, do not stand out from the surface so prominently or become pedunculated, and other characteristic signs of syphilis can usually be found. The tubercles of *leprosy* do not fungate, itch, or pass through the rapid changes of mycosis fungoides. *Anæsthesia* is apt to be present and is sometimes extensive in leprosy, and its ulcers may be deep and disfiguring, moreover its tubercles always contain the bacillus lepræ, which is easily found on efficient microscopic examination.

PROGNOSIS.—This is always unfavorable unless modified by radiotherapy. The worst cases, i.e., those without prodromal eruption, have an average duration of about two years, but may die in a few weeks. Other cases usually prove fatal after a longer irregular course, averaging about eight years. Persistent diarrhoea and marasmus at the last hasten the fatal issue.

TREATMENT.—No local measures have proved of any service in this dis-

ease except *radiotherapy*. Scholtz has reported the cure of three cases in which the lesions, both tumors and pre-mycotic foci, have completely disappeared under persistent use of the X-rays. Hyde, Lustgarten, Elliot and others have reported like results. The pruritus and other distressing complications may be treated with soothing lotions and antipruritic applications as outlined under the treatment of eczema. After the fungating tumors have developed they should be kept clean by washing with hot *borax water* or a solution of *permanganate of potash*, and then dusted over with any non-irritating antiseptic powder, such as *aristol*, *iodol*, *nosophen*, *iodoform*, *boro-phenate of bismuth*, or *boric acid*. Where ulcers form they should be dressed with antiseptic applications. Internally *arsenic* (Fowler's solution) has been given in full doses, by the mouth and by hypodermic injection, with benefit and with a reported cure in one case by Köbner. Abscess is very likely to arise from subcutaneous medication with arsenic, therefore it should be employed with great caution. It is quite probable that a well indicated drug might exert a more curative effect. Tonics and a generous diet are usually necessary.

A clinical history of the disease may suggest some of the drugs named below, but each case would need careful individualization in making a prescription. See *Cal. carb.*, *Kali brom.*, *Lach.*, and *Phosphorus*.

XERODERMA PIGMENTOSUM

(*Atrophoderma pigmentosum*; *Angioma pigmentosum et atrophicum*; *Melanosis lenticularis progressiva*; *Dermatitis Kaposi*; *Liodermia essentialis (cum melanosi telangiectasia)*; *Lentigo maligna*.)

Xeroderma pigmentosum is a rare chronic disease of the skin that begins in early childhood and slowly passes through various forms of eruption that terminate, sooner or later, in some form of cancer. The disease seems to have a hereditary basis as shown by its frequent occurrence in certain families. As the disease appears principally upon those parts that are exposed to light, the face, neck, hands, arms and legs, it has been suggested by Unna that it is due to the action of sunlight upon a hereditarily sensitive skin. He points out the analogy between this disease and the so-called cancer of sailor's skin.

Xeroderma pigmentosum commences in the first or second year of life as a diffuse or mottled redness of the face, neck and back of the hands, together with a roughening of the skin due to increase of the horny layer. The hyperæmic patches are succeeded by small pigmentations like freckles, among which small telangiectases also appear. Taylor claims that these lesions are variable, disappearing at one point and appearing at another, but always increasing in number. About the sixth year of life, small areas of atrophy appear, which, according to Taylor, correspond to previous freckles or telangiectases. The atrophic areas increase in size, forming patches of thinned, shrunken, dry,

white skin (parchment skin or xeroderma). At the margin of the atrophies, the telangiectases are prominent and may form angiomatous nodules. After a period of from two to ten or even more years warty nodules appear, that resemble moles both to the naked eye and in their minute structure. These nodules form the starting point of the malignant growth. They grow larger, usually ulcerate and may bleed freely. On the appearance of the tumors, the patient's health rapidly fails and death from the cancerous cachexia occurs in two years or less. Metastases to the lymph glands or internal organs have not been observed. These final tumors have been variously described as sarcomata, myxosarcomata and carcinomata. Unna claims that they are all carcinomata, stating that the early growths, like simple nævi, are sometimes strikingly like sarcomata and liable to mislead the observer unfamiliar with the appearance of nævi. This disease reaches its fatal termination in from five to fifteen years, though a few cases have reached the age of twenty-five and even sixty years. About one hundred cases have been reported.

ETIOLOGY.—The causes of this disease are obscure. It seems probable that some congenital defect exists in the skin (as in ichthyosis) on which the normally stimulating sunlight produces abnormal effects, progressive in nature. While the actual disease is not hereditary there may be a defect in the development of the skin due to hereditary influences. It is supposed by some to be a tropho-neurosis. The disease more often begins in summer, and at about the age when children are first liable to have the uncovered parts of the skin exposed to direct sunlight.

DIAGNOSIS.—In a well developed case no error in diagnosis is likely to occur. The location on the exposed parts of the skin, the pigmentations, dilated capillaries, atrophic spots and warty growths are sufficiently characteristic. At an early stage the lesions may resemble the eruption of *measles*, *erythema* from exposure to the sun, ordinary *freckles*, *vascular nævi* or *urticaria pigmentosa*; but the persistent though perhaps erratic course, limited distribution, absence of subjective sensations or some other equally apparent differences would sooner or later serve to exclude all these affections. The atrophic stage of *scleroderma* and xeroderma pigmentosum after atrophy has begun, may present an objective similarity, but in no other way. *Scleroderma* begins later, is not limited to the face, neck and hands, and the signs of atrophy are preceded by those of hypertrophy, stony hardness, "hide-bound skin," etc., distinctly unlike the evolution of xeroderma.

PROGNOSIS.—This is always unfavorable after the disease is fully developed. In the earlier stages the progress of the disease may probably be delayed, life prolonged and possibly cancerous growths prevented by treatment.

TREATMENT.—No therapeutic method has been found curative as yet. *Internally*, an indicated remedy should be selected from among those known to stimulate the nutrition of the skin. *Externally*, in the early period of the disease, the surface may be protected so far as practicable from the sun's rays and other irritants. Later conditions may be treated as they arise; when the eyes are affected the conjunctivitis may be relieved by frequent bathing with a

saturated solution of boric acid. The growths may be removed by *excision* or the *galvano-cautery*, as the wounds thus made heal rapidly. Old ulcers may be made to heal by scraping with a sharp curette and dressing with a mild antiseptic ointment, while new sores may be dressed at once with the latter; Crocker recommends a dilute *ammoniated mercury* ointment for this purpose. The *Röntgen rays* have cured the ulcerations of this disease and may be regarded as a possible method of treatment.

VERRUGA

(*Verruga bland*; *V. mula*; *V. de Zapo ó de quinua*; *V. de Castilla*; *V. de Sangre*; *V. Andecola*; *Oroya fever*; *Carrion's disease*; *Peruvian and Andean warts*.)

Verruga is a chronic infectious disease characterized by a specific eruption. It is confined to certain parts of the Pacific slope of the Peruvian Andes, and attacks both natives and foreigners who pass through its endemic localities.

The disease begins some weeks after infection, with fever and considerable pain in the muscles, bones and joints. After the lapse of several weeks or months, or even a year, according to one observer, the eruption appears in the form of small, fleshy protuberances, called "warts," that grow to the size of a cherry or even an orange. The typical appearance of the eruption is first upon the head and progressively downwards, appearing on the mucous and serous membranes as well as the skin, and some may be subcutaneous. The surface tumors are very painful; they ulcerate readily and bleed freely. After a variable period, running into months, the lesions undergo involution and leave no mark, unless sloughing and ulceration have occurred.

The PROGNOSIS is uncertain. Some cases recover, but the mortality rate is from six to ten per cent. among the natives and from forty to ninety per cent. among the whites. One attack affords no immunity against future attacks.

ETIOLOGY AND PATHOLOGY.—The disease is transmissible by inoculation and attacks both sexes at all ages. Laborers and other workers in the earth are especially liable to infection. Moisture, warmth and malaria seem to be factors in the aggravation or production of this disease. *Histologically*, it is composed of round cells in a delicate fibrous matrix, resembling a lymphosarcoma or the infective granulomata. Yzquierdo has found, in the tumors and neighboring blood-vessels, a *bacillus* that has specific staining qualities. Other micro-organisms have been found, but none can be absolutely determined as the effective agent. The disease has been transmitted by inoculation of the tumors, but not by a culture of the bacillus.

The DIAGNOSIS of verruga in the pre-eruptive stage may be difficult; *rheumatism*, the pains of *syphilis*, and *malaria* may need to be excluded. A

history of travel or residence in an endemic district would be significant. After the eruption appears the disease is easily recognized.

The TREATMENT is based on general physiological principles, such as removal from the infected region, a sustaining diet, etc. No drug specific is known, but *Cundurango*, *Kali brom.*, *Lach.*, *Petro.*, *Phos.* and *Thuja* show some points of similarity in their pathogenesis.

PART III

INTERNAL THERAPEUTICS

ACONITUM

Aconite, acting on the cerebro-spinal axis, has a paralyzing effect on the arterial capillaries which may result in rapid congestion and inflammation, especially of the serous, sero-fibrous, mucous and cutaneous tissues. Mento-nervous symptoms of fear, anxiety, restlessness and peripheral neuralgic pains, or *sensations* of heat, numbness, tingling, stinging, biting, itching, tearing, drawing, crawling, etc., with great sensitiveness to cool air and touch are characteristics. It is adapted to the early stages of several angioneurotic and neurotic affections of the skin.

Erythema multiforme.—Spots like flea bites on hands, like nettle rash on back of hands; red spots on face; discolorations on limbs; with heat, stinging, pricking or itching sensations; with restlessness; with fear or anxiety about attack; in plethoric persons, especially when following anger, chagrin or fright with reactive faintness and prostration.

Pruritus.—Of recent occurrence in persons of full habit excited by mental emotions, with fear that some severe eruptive disease is about to appear. *Sensations* of heat, biting, tingling, crawling or fine pricking; *worse* on extremities and face, at night, from tobacco, and *relieved* by stimulants.

Urticaria.—Attended with unusually sharp pains, great restlessness and anxiety about attack or something connected therewith, with *lesions* of large size, distinctly red and hot.

Herpes zoster.—Prevesicular stage attended with fever and sharp neuralgic pains, due to exposure to cold air, suppressed perspiration or depressing emotions, especially in the plethoric of sedentary habits.

Aconite may be given in the sixth decimal attenuation for sensory affections, and in the same or lower attenuation for a more distinct, congestive or inflammatory disorder.

AGARICUS

This drug acts primarily on the nerve centres and causes contractions of involuntary muscular tissue, especially of the capillaries, stimulates secretions and leads to local congestions and oedema. The effects produced on the skin through the motor and sensory nerves arise chiefly from local disorder of the

circulation and the secreting glands. Circumscribed erythematous, papular, pustular and cedematous *lesions* are the principal objective effects. *Sensations* of itching, burning (as from frost-bites), formication and twitching (sometimes seen) may be felt. *Locations* principally affected are the face, ears, head, back, hands, fingers, toes and genitals.

Acne simplex of the face, or face and back, accompanied with an oily condition of the surface, a darkish-red areola about the papules or pustules in contrast with the rather pale, unaffected parts of the skin, frequently calls for agaricus. Special indications for it are muscular twitchings (choreic), burning, crawling, or creeping sensations.

Acne indurata less often requires agaricus (on similar indications) unless associated with rosacea.

Seborrhœa oleosa occasionally requires agaricus when there are on the face contrasting spots of purplish redness and undue pallor, red ears, muscular spasms, burning, creeping sensations.

Hyperidrosis of the legs, especially of the inner surfaces, worse at night and accompanied with sensations of coldness as if fanned, lassitude or weakness, twitching, etc., may be cured with agaricus.

Erythema calorica (pernio; chilblains).—Redness of face, with twitching and burning as after freezing; of fingers, with burning itching as if frozen; redness without heat; itching of fingers, toes and ears, with burning, redness and swelling as after a frost-bite; with sensations *worse* from heat and scratching.

Erythema multiforme with above indications.

Angioneurotic edema.—Redness and circumscribed swellings without heat; burning and tension as from frost-bite, on or about the face, hands or genitals, with twitching of superficial muscles.

Rosacea.—Redness and oily appearance of the nose or cheeks with little or no heat; at a later stage bluish redness of nose like frost-bite with paleness of unaffected skin, *worse* after eating, from exposure to cold and mental application; papulo-pustules on cheeks and forehead, associated with muscular twitching of face or spasmodic affections elsewhere, flatulent indigestion or genito-urinary disorders.

Agaricus should always be given in the lower attenuations, first to sixth decimal, according to the response obtained.

AGNUS CASTUS

This drug may be found useful in skin disease associated with sexual impotence in either sex, and attended with mental depression.

Eczema, Psoriasis.—With the above indications.

Pruritus.—When associated with sexual neuroses and general weakness,

sometimes coldness of external genitals, with *sensations* like flea bites or corrosive itching, only temporarily relieved by scratching; in the prematurely old.

The sixth decimal attenuation is most frequently employed.

ALOE

This drug is adapted to indolent and phlegmatic types and to conditions occurring in middle life or old age. The symptoms are usually *worse* from heat, from walking, and after eating. The characteristic cystic or hepatic symptoms are especially valuable as indications.

Acne indurata, with varying redness of the face and reflexly due to pelvic engorgement, especially when associated with a frontal headache, plug-like constipation, or other symptoms of aloes.

Reflex types of **eczema** situated on the inner part of thighs, *perineum* and about the *anus* or *vulva* when due to pelvic engorgement, especially of the rectum, are often benefited by aloes. The symptoms are usually *worse* from heat, dampness, in the morning—between one and ten A.M.—from walking and after eating. It is adapted to indolent and phlegmatic types and to conditions of middle or old age. Characteristic rectal, cystic or hepatic symptoms are of special value as indications.

Both the low and high attenuations have proved efficient. The author prefers the twelfth decimal.

ALUMINA

This drug probably produces its effects on the tissues through the motor nerves. It is indicated in chronic skin affections attended with *dryness* and *tension*. Symptoms connected with associated catarrhs of the mucous membrane, mental depression and peevishness furnish other indications for this drug. Its characteristic constipation is a keynote for its use in cutaneous diseases.

Partial **anidrosis** or **asteatosis** should lead to a study of alumina, particularly in old age, when there are sensations of tension or intolerable itching, *worse* at night in bed.

In **acne simplex**, associated with general or local dryness and tension of the skin and mucous membranes, consequent dry constipation, soreness in rectum and a feeling like an emission when straining at stool, particularly when the papules or pustules are surrounded with little or no redness, alumina is often curative.

Alumina may be indicated in chronic skin affections attended with dryness and tension. These conditions occasionally characterize a more or less general

and persistent eczema occurring in thin and poorly nourished subjects, especially in youth and old age. In such persons the inflamed skin may appear thin rather than thickened, hence scratching causes it to bleed easily. Itching is *worse* at night and from warmth of bed. Nearly always associated catarrhs of the mucous membranes, mental depression and peevishness furnish other indications for this drug. Its characteristic constipation is a keynote for its use in cutaneous disease.

Alumina may be indicated in mild cases of ichthyosis, and in that rare disease *sclerema neonatorum*.

Prurigo.—In early stages, itching rash without redness on arms and legs, intolerable itching, *worse* on becoming heated, from warmth of bed; dryness of whole skin, associated with characteristic constipation or affections of mucous membrane.

Alumina can be given in the sixth decimal or higher attenuation.

AILANTHUS

This drug produces a toxic effect on the system, with disturbances of the gastro-intestinal tract, malaise, torpor, weakness, restlessness, low fever and an outbreak on the skin resembling severe types of scarlet fever or measles.

Erythema scarlatiniforme.—In cases preceded or accompanied with unusual depression, fever and a dark red or livid colored rash.

The second decimal is a suitable attenuation.

AMMONIUM CARBONICUM

This salt disorganizes and thins the blood so that putrefactive processes, local congestions and hemorrhages occur, the vital powers are enfeebled, and reaction to normal stimuli lessened. On the skin erythematous, papular, pustular, vesicular *lesions* and desquamation have been noted. The principal *locations* have been the face and upper half of body. *Sensations* of heat, itching, burning, tension and soreness to touch, with aversion or sensitiveness to the open air, stormy weather, bathing; and corresponding *relief* from dry weather and remaining indoors are characteristic.

Acne simplex or **indurata** may suggest ammonium carb. when the lesions are of a recent date, attended with sensitiveness, contraction or tension of the skin of the face, great sensitiveness to touch, especially when there exist associated catarrhs, or if the patient is suffering from a sort of listless debility, whether due or not to recent illness, and the modalities of this drug are found to be present.

Erythema scarlatiniforme.—Redness like scarlatina of whole part of

body, with sensitiveness to cold, desquamation and exfoliation of the skin; in cases due to absorption of putrefactive matters; with sensations of swelling (tension), heat or itching.

This drug is adapted to acute or subacute forms of **eczema** due to blood changes, particularly to **erythematous** eczema of the face, attended with heat, itching and tension. There are usually present symptoms of debility, sensitiveness and *aggravation* from cold or stormy weather. open air, after eating and while at rest, with corresponding *relief* from warm, dry weather and indoors. There may be associated catarrhs of the mucous membranes with their characteristic symptoms, tendency to hemorrhages, etc., affording concomitant indication for this remedy.

The lower attenuations are to be preferred; third to sixth decimal.

AMMONIUM MURIATICUM

This drug increases the fluidity of the blood, promotes glandular secretion and causes nodular swellings. When the sweat is increased vesicles are apt to appear on the face, hands wrists, chest, neck, or other parts; or in a more generalized miliary rash of a mild grade with erratic itching, stinging, burning or crawling; *worse* in the evening,—*better* on lying down and from scratching.

Miliaria sudamina, Miliaria rubra.—Acute affections of the sweat glands often require only ammonium mur. to effect a rapid cure if any of the above indications are present, so well does it fit the primary functional disturbance.

Seborrhœic dermatitis beginning in warm weather from excessive sweating of the parts may present early symptoms like ammonium mur., and at that stage yields quickly to its curative action.

Erythema nodosum.—Deep-seated reddish-brown sensitive nodes around wrist, with itching; seem about to suppurate, but do not; with drawing tension in legs when sitting or lying; with burning, stinging or crawling sensations; in fat or sluggish young persons, or fat in body and thin in extremities; in the poorly nourished, anæmic or rheumatic.

Ammonium mur. should usually be administered in the third decimal attenuation freshly prepared.

ANACARDIUM

Mental irritability and illusional depression characterize this drug. These symptoms, the *plug-like* sensation of pressure and sometimes sexual weakness are fine indications for it in suitable cases of **neurotic eczema** with papular, papulo-vesicular and pustular lesions, often widely distributed. Morning and late evening *aggravations* of the itching and burning sensations are characteristics. The warmth from close-fitting clothing seems to excite itching, and

scratching affords little or no relief from the latter sensation. Some of the lesions produced on the skin by this drug, as well as the sensations, correspond pretty closely with the eruption of **lichen planus**. One case in the author's care improved rapidly while under treatment with the third decimal administered every three hours. Relief of the surface irritation was almost coincident with an abatement of the mental symptoms which first called up this remedy. Anacardium may be compared with *rhus tox.* in its action on the cutaneous structures, but it occupies a very much narrower space in the therapeutic field.

The third or sixth decimal has been found to be most often curative in effect on the skin. Occasionally the dose may need to be lowered to the tincture before a satisfactory result is witnessed.

ANTHRACINUM

Furuncle.—Blue boils with burning pains. **Carbuncles** hard and pointed, with severe burning pains, exhausting perspiration, cerebral symptoms and expectation of death. Especially for carbuncles situated on face or head.

Anthrax maligna.—Horrible burning pains in hard pointed lesions, not relieved by arsenic; red lines mark course of lymphatics. Signs of blood poisoning, gangrenous sloughing with extreme exhaustion and cerebral symptoms.

The thirtieth decimal or higher attenuation should be employed.

ANTIMONIUM CRUDUM

This drug acts chiefly upon the skin and mucous membrane, lowers vitality, increases the secretions without producing much inflammation; sweat without odor, general or symptomatic, intermittent. macerated, inflamed and wrinkled skin from excessive sweating, especially indicated for affections due to excessive sweating or for sweat rashes on the face, neck, back, chest, wrists, etc. If the special indications for antimonium crud.—irritable disposition and *white tongue*—are present it will nearly always benefit sweat diseases. *Aggravations* from exercise, warmth and wine, and *relief* from rest and cool air, still further point to its adaptability to these disorders.

Acne indurata may occasionally be benefited by antimonium crud. when with its other characteristics there are present small red papules, which sting when pressed, particularly in cases associated with gastric derangements and in the alcoholic or dissipated.

Symmetrical **hyperidrosis** of the feet or hands without odor, sometimes causing the skin to look macerated and wrinkled. especially when associated with the catarrhal diathesis, may be relieved by antimonium crud.

In **miliaria rubra** (from sweating) on the neck, face, back, chest, wrists, etc., with stinging and itching sensations, *worse* from exercise, warmth, wine, and *relieved* by rest and cool air, antimonium crud. not only gives immediate relief, but tends to prevent a recurrence.

Hydrocystoma and hydradenitis suppurativa, rare affections, probably present in some cases good indications for antimonium crud., and then would respond to its action.

Subacute **eczema** about the nostrils and mouth, due to or associated with nasal catarrh, will often improve rapidly under the influence of this remedy, sometimes even when other indications for it are not pronounced. With the well-known symptoms of this drug present it may be given confidently for **eczemas** of a low type tending to pustulation and the formation of offensive crusts, particularly of the face, ears and eyelids and on or about the genitals. It acts better on the fat rather than on the lean in flesh, and on the *left* side more than on the right. *Aggravations* from cold water, externally and internally, from wine, after eating, from touch and motion; *relief* from rest and the open air, a white coated tongue and mental states of fretfulness or sulkeness are among the symptoms pointing to its selection. Antimony is oftener indicated for the **eczemas of childhood**, but not less useful in similar types of youth and mature life. Bluish or brownish staining of the skin remaining at the sites of previous lesions (*berberis*) is a minor indication.

The apparent influence of antimony in stimulating abnormal epithelial growth, and its elective affinity for the feet and hands as manifested in hypertrophic spots resembling callosities and corns, led to its being prescribed for an affection now known as **keratosis palmaris et plantaris**. It has been found to correspond symptomatically with the natural history in a number of cases of this unusual disease, beginning with the sweating of the hands, tendency to accumulate flesh. *aggravations* from cold water, motion and pressure, etc. Several cases have been cured, some of them very pronounced and others of long standing (twenty years in Gourzale's case).

Urticaria.—Pimples as from stings of insects, especially on *face* and about *joints*, with itching waking one from sleep, after rubbing like mosquito bites; associated with perspiration; appearing after active exercise or use of stimulants; with irritability, white coated tongue and catarrhal affections.

Impetigo.—Pustules here and there, preceded by sweat, tingling or numbness; associated with gastric disorders and mental irritability. General symptoms *worse* from stimulants, after eating, exercise and warmth, *better* from rest and in the open air.

Impetigo contagiosa.—Superficial suppurating and crusted lesions about mouth and nostrils, with sore cracks at the corners; white tongue; peevish and fretful children who do not wish to be touched or observed.

Verruca, Clavus, Callositas.—Tendency to the development of flat warts, corns or calluses on hands or feet, associated with sweating of parts. tingling or numbness and other indications for antimony.

Antimonium crud. should seldom be given above the twelfth decimal. Often the lower attenuations will be more efficient.

ANTIMONIUM TARTARICUM

This drug stimulates the secretions, especially of the mucous membrane and the skin, depresses the functions of circulation and respiration, and causes nausea, faintness and prostration. On the skin it gives rise to papules, vesicles and *pustules*, the latter being characteristic and occurring on the mucous membrane also. *Location of lesions* is not characteristic and *sensation* is not a constant symptom, though tickling, itching, crawling and burning are credited to it.

Acne simplex or indurata with a predominance of quickly formed pustules with deep red areola, more numerous on the shoulders, back of neck and back, leaving stains and pock-like cicatrices at the site of earlier lesions, are good conditions for antimonium tart. Persistent desire for acids or alcoholic stimulants and eruptive lesions of the mucous membrane are special indications. As this drug acts both dynamically and locally, it may be employed externally, one to two hundred, in ointment or dusting powder in cases requiring local applications.

Hydradenitis suppurativa has pathological features corresponding to antimonium tart. It is quite likely, therefore, that its internal and local employment would hasten recovery from this disorder.

Herpes gestationis, Impetigo herpetiformis and Dermatitis herpetiformis are rare affections which might present indications for antimonium tart. by widely distributed and extending vesicular eruptions, by first appearing on inner thighs, by transformation to pustular lesions and the presence of other characteristics of this drug.

Impetigo.—Discrete vesico-pustules or pustules surrounded by a red areola, sometimes umbilicated, especially on face leaving bluish marks; weak and ill-humored subjects. Symptoms generally *worse* from perspiration, and *better* in the open air.

Impetigo contagiosa.—Large split, pea-sized, painful pustules with red areola; bulky yellow crusts; numbness, itching or tickling sensations.

The third decimal is the most useful attenuation in the above affections.

ANTIPYRINE

This synthetical product introduced into the system acts especially on the vaso-motor centres, causing dilatation of the capillaries of the skin and consequent circumscribed patches of hyperæmia and swelling resembling some of the *lesions* of erythema multiforme or urticaria. The favorite *locations* for eruptions are the chest, back and abdomen, but they may appear on the extremities; they are more abundant, as a rule, on the extensor surfaces. The color disappears on pressure, except that a brownish tinge often remains. The onset is attended with itching and often with sweating.

Erythema multiforme.—Red, slightly elevated spots on trunk or beginning on trunk and extending to limbs; with cold sensation inside of body; with abundant perspiration; from gastro-intestinal irritation or from effects of some article of food.

Urticaria.—Eruption appears and disappears suddenly with intense itching; on chest, back, abdomen or generalized, with intermittent internal coldness; from intestinal irritation or some article of food.

Urticaria pigmentosa.—Early stage when lesions appear and disappear suddenly, leaving pigmentations; recurring and spreading from trunk downwards to extremities; onset attended with itching.

Angioneurotic oedema.—Sudden swellings which disappear, and reappear soon upon some other region of the surface; with nausea, vomiting, suffocation, indicating involvement of mucous membrane.

Antipyrine needs to be given in the second decimal for its best curative effect.

APIS

This poison probably produces its effects by first paralyzing the vaso-motor nerves controlling the capillary circulation in certain areas of the cellular tissue, resulting in the formation of erythematous and oedematous *lesions*, and sometimes resembling the early stages of destructive or malignant forms of inflammation. Cutaneous eruptions may be generally *located*, but show a preference for the face and extremities. *Sensations* of stinging, burning, smarting, pricking, itching, or great sensitiveness to touch are characteristic. All symptoms are apt to be *worse* about 5 P.M., and from heat of bed, and are *relieved* by cold bathing of the parts. Weakness, stupor and absence of thirst are suggestive concomitants.

Erythema multiforme or nodosum.—When swelling is out of proportion to the redness; with stinging, burning, smarting or great sensitiveness to touch, relieved by cold applications; with lassitude, apathy and feverishness without thirst.

Vaccination eruptions.—When occurring within the *first* three days of vaccination, or at a later period from mixed inoculation through the vaccine wound, in either case with *lesions* resembling erythema multiforme, urticaria, erysipelas, cellulitis, furunculosis or gangrene and attended with other indications of apis.

Prominent features of its pathogenesis (drowsiness, oedema, etc.) are very similar to conditions found in **oedema neonatorum**, and it ought to prove remedial in that rare disease.

Urticaria.—Red and white blotches and wheals sensitive to touch with stinging, burning pains; *worse* from heat, scratching, *better* from bathing with cold water; feverishness without thirst, apathetic before or between crops of eruption.

Angioneurotic edema.—Large swellings of every form and location, which appear rapidly and suddenly shift location on skin or mucous membranes, associated with other symptoms of ap^{is}.

Insect bites.—Swellings after bites, sore and sensitive to touch, burning, stinging pains, *relieved* by cold bathing; lassitude, sleepiness and thirstlessness.

Furuncle, Carbuncle, Dissection wounds.—Early stage attended with considerable swelling, burning, stinging, great sensitiveness to touch, weakness and dullness. Later stage when swelling extends, accompanied with stinging, etc.

Erysipelas.—Pale red oedematous swelling on face, head or extremities; stinging, burning, pricking *sensations* in parts; fever without thirst, apathy. *Aggravations* in late afternoon, from heat of bed, some *relief* from cold bathing of parts.

Lupus erythematosus.—When the disease extends by erysipelas-like attacks, with considerable swelling from infiltration of cellular tissues, attended with stinging, burning or itching sensations, *relieved* by cold bathing of the parts.

Leucokeratosis buccalis.—Persistent scalded *sensation* on tongue or other parts of the mouth. Dry, sore, cracked tongue in spots or lines, with burning and stinging *sensations*, *relieved* by cold water.

The third decimal is the best single attenuation of ap^{is}, but occasionally it is needed in the first or second, and sometimes in the tincture.

ARGENTUM NITRICUM

Nitrate of silver disorganizes the blood, irritates and inflames the mucous membranes, deranges nerve function and secondarily or remotely causes disturbances in the skin (excluding the actual deposit of its granules therein). Its place as a remedy in cutaneous diseases is, therefore, limited to affections associated with its characteristic action. Papular and pustular (or ulcerating) *lesions*, dark red or bluish or surrounded with a like-tinted areola, are only characteristic. *Location* is not important. *Sensations* of splinter-like pricking or stinging are the most significant subjective symptoms, though itching is occasionally prominent.

Acne simplex occurring in young persons suffering from neurotic affections (epileptoid, melancholic, etc.), affections of the mucous membranes, which reflexly cause intermittent flushing of the face, may be benefited by argentum nit. Craving for sweets, *aggravation* of symptoms at night, from warmth, cold food, and after eating, and *relief* from fresh air, are further indications for this remedy.

Acrodynia, Pellagra.—Some similarity in the general and cutaneous symptoms of these autotoxic affections to the pathogenesis of nitrate of silver would indicate that it might be of value in their treatment.

Ecthyma.—Large pustules preceded by itching or pain; *lesions* with blackish crusts, surrounded by a dark red or bluish areola, pricking or stinging *sensations*, *worse* at night and from warmth, *better* in the fresh air.

Syphilis.—Primary lesion; moist, painful pimple, changing to an indurated papule with pricking sensations, *worse* at night and from warmth. Late secondary or tertiary stage with lesions involving the periosteum, with painful, sensitive or splinter-like pain, *worse* at night and from warmth.

Argentum nitricum is serviceable, when indicated, in the third to sixth decimal, never higher.

ARNICA

Arnica acts primarily on the blood and leads to local disturbances of nutrition, hemorrhages, and a peculiar sensitiveness of the peripheral nerves. Its very common use for mechanical injuries and myalgic affections has probably led to its neglect as a remedy for cutaneous disorders. Clinically it has been found that symmetry is a good indication for arnica, and in cutaneous eruptions this has been verified many times.

Acne indurata characterized by symmetry in distribution and large, deep-seated papules or pustules with darkish areola, unusually sensitive to pressure (this symptom may be general also), with paleness of the unaffected parts of the face, is likely to be benefited by arnica.

Erythema traumaticum, E. caloricum, Dermatitis venenata, D. calorica, D. traumatica.—In any of the foregoing arnica may be indicated by great sensitiveness to pressure, bruised sensation, burning, throbbing, stiffness, infiltration and swelling, dark red or livid redness, tendency to hemorrhages or gangrenous changes.

Erythema multiforme.—Redness, with heat and œdema; red patches, with swelling, soreness and burning; erysipelatous, with turgescence, heat and papular elevations; especially symmetrical erythema of the face, dorsum of hands or feet, with sensitiveness to pressure (lying on) of all or parts of the surface, with stinging, burning or itching sensations.

The form of **eczema** usually calling for this drug is the erythemato-vesicular or papulo-vesicular, bilateral in distribution, often located on the feet, ankles, legs, scrotum or arms. Occasionally the form is seen in the gouty or rheumatic, and then the erythematous field for closely situated vesicles or papules is well marked. Soreness with burning and itching may be present in greater or less degree, and not infrequently an early morning *aggravation* is experienced.

In **psoriasis** a more than usual soreness, burning or itching, and symmetry in size and distribution of the lesions, are most important indications for arnica.

When inflammatory lesions assume a low type, as when some of the exanthemata eruptions pass into the conditions known as **dermatitis gangrenosa infantum**, arnica is always to be considered in selecting a remedy. The local

changes in the blood and its vessels, the œdema, sloughing and the disturbances in sensation may be very similar to the more pronounced effects of this drug. Curiously enough the higher attenuations appear to act best in such cases, while in eczema and psoriasis the lower have proved most efficient. One of my own cases of extensive and protracted psoriasis in which arnica was indicated yielded only to drop doses of the tincture, and was finally cured with this preparation alone.

Dermatalgia.—Bilateral, bruised, tensive, drawing or tearing pain with great sensitiveness to pressure of bed on lying down; *worse* from wine, during day, *better* from motion and at night.

Acrodynia, Pellagra.—Arnica is worthy of study and trial in the therapeutics of these obscure affections.

Purpura.—Preceded or attended with bruised, sore, weak sensations in the parts affected, sometimes moderate hemorrhages from the mucous surfaces, with sinking of strength and general sensitiveness of whole body to pressure.

Peliosis rheumatica.—With bruised pain and sensitiveness of whole body; dark red or bluish spots over or near joints of extremities and rarely elsewhere, with pains in the joints, languor, anorexia. prostration and moderate fever.

Diabetic gangrene.—From slight wounds, bruises or contusions, or arising spontaneously, preceded by bruised soreness, tension or sensitiveness of the skin.

Furuncles.—Many small boils, symmetrically distributed; extremely sore, hot, hard, bluish-red and shining; less painful after suppuration. Sensitiveness of whole body to pressure, general lassitude. Bruised, pricking, throbbing, burning, stitching sensations, *worse* from uncovering, rest, cold and sometimes from warm applications, *better* from wrapping up, motion, general warmth, after midnight and during day. Especially in diabetes.

Erysipelas.—Red, hot, œdematous, shining skin, with a tendency to a formation of vesicles, bullæ, petechiæ or ecchymoses. Extreme tenderness or soreness on pressure; throbbing, burning, stitching, pricking sensations; *worse* from uncovering, *better* from warmth and during day.

Erysipeloid.—Spreading, livid redness from the site of a small wound, attended with burning and prickling sensations; *worse* from cold applications, *better* from warmth. Gangrenous appearance of wound.

The second to twelfth decimal attenuation of arnica may be used for most cases, the higher attenuations being selected for the more typical cases. Sometimes a lotion of the second decimal may be used with benefit.

ARSENICUM ALBUM

Practically it is impossible to draw any strict lines about this drug in giving it place in the therapeutics of skin diseases. Prescribed empirically or without careful review of its wide field of action, it most often yields disappointment, whatever the dose employed. It may be occasionally indicated in a large number of cutaneous diseases, but commonly only in a few. Then some of its

characteristics should be found as prominent or typical symptoms. These in the order of their relative value as therapeutic points in skin affections may be placed as follows: *burning* with or without itching sensations, *worse* at night (at rest), from scratching and from cold, often *relieved* by warmth or motion; *periodicity* in the onset and aggravation of eruptions or of associated symptoms (restlessness, thirst, etc.); *chronicity*—even malignancy in the sense that the disease is irresponsive to treatment or low in grade; *adynamia* and continuous or manifested by intermittent periods of exhaustion. The latter condition, so valuable as an indication for arsenic in some acute affections, is rarely observed in true affections of the skin excluding the eruptive fevers; on the other hand it may prove a curative remedy for cutaneous disease even when the general health appears unaffected.

Arsenic acts with apparent directness on the deeper cells of the epidermis, the sites of a multitude of nerve terminations, causing a proliferation of immature cells, irritability of the affected parts with great intolerance to artificial stimulation. Rarely the process may go on to vesiculation, pustulation, ulceration or gangrene, but the eruptions commonly calling for arsenic are dry and scaly.

In *acne* of the face in youth or adult life arsenic is only rarely indicated, and then only by the presence of its characteristics already named, particularly by a marked intolerance to local stimulation of the affected skin.

Eczema of the squamous type presenting some of the characteristics of arsenic may be frequently cured with this remedy. Such *eczemas* are more often located on the face, ears or scalp, and occasionally an intermittent puffiness of the eyelids (*crotalus*) may afford an extra indication. The location of the eruption, however, is not important in the presence of other marked indications for arsenic, and the same may be said as to the kind of lesions, though in the author's experience it seldom takes precedence of other drugs for vesicular or pustular forms of *eczema*.

Psoriasis in its histo-pathology gives better indications for arsenic than in its pure symptomatology. The usual lesions of *psoriasis* may be compared to the primary effects of arsenic carried to an extreme, and the history of one of my own cases of generalized *psoriasis* shows that the primary onset of the eruption followed the use of over large doses of arsenic prescribed for another disease. Most cases lack the other characteristics of this drug. Sometimes the lesions will be found very *intolerant* to the presence of scales which form upon them, and to other forms of mechanical irritation. Such intolerance is a good indication for arsenic, particularly if some lesions are found upon the face and scalp. In the usual absence of the general indications for arsenic in *psoriasis* it is well to remember the suggestion of Hahnemann: "In cases where, along with a local affection, the general health seems good, we must proceed from the at first small doses to larger ones." It is not necessary, as was once believed, to produce and maintain slight toxic effects in order to obtain a cure. The second decimal or more often the third decimal is low enough in the attenuation scale.

Dermatitis exfoliativa, a rare disease of adult life, presents cutaneous features similar to those obtained on animals from the administration of arsenic as well as a varying likeness to its human pathogenesis. The fever, malaise and impairment of health which may precede or attend the onset of the disease, the emaciation, the reddish-purple, dry skin, exfoliative whitish-brownish scales, the swelling of the ears, eyelids in marked cases, the occasional alopecia, and the subsequent pigmentation—all bear a resemblance to this drug.

In some very rare types of inflammation of the skin attended with more or less exfoliation of the epidermis, described as **dermatitis exfoliativa neonatorum**, **epidemic exfoliative dermatitis** and **parakeratosis variegata**, the symptoms given in the few recorded cases indicate that arsenic ought to be a helpful remedy at some stages in their course. In that grave and little understood affection known as **pityriasis rubra**, which apparently begins in the skin and secondarily leads to visceral disorders, arsenic in large doses has repeatedly failed to benefit, but the many points of similarity in symptoms give hope that it might prove remedial or palliative in minute doses in those cases where burning and itching sensations, great intolerance of scratching and rubbing, and aggravations from cold are marked features. The gross pathological changes in this disease in the epidermis hold a pathological resemblance to the known effects of arsenic on the epidermis of animals.

Lichen ruber, another malady of rare occurrence and persistent gravity, manifests a number of symptoms found in the pathogenesis of arsenic. Indeed, this drug in full doses is about the only remedy that has been found of benefit to patients afflicted with this disorder; while our *Materia Medica* furnishes other drugs likely to be indicated and useful in the varied forms of lichen ruber, arsenic will probably remain the sheet anchor in the more pronounced cases.

The less grave and less rare **lichen planus** is not likely to show very marked indications for arsenic in the early stages, when the seat of morbid activity is in the papillæ of the corium, but in the later stages marked by increased changes in the cells of the epidermis arsenic hastens resolution and diminishes the tendency to pigmentation, particularly if the general condition resembles that produced by the drug. This correspondence is not often observed, and hence another drug may be better indicated or arsenic must be given in low attenuations in order to touch the skin lesions.

Keratosis pilaris may respond to arsenic when the typical indications are present.

Urticaria, U. pigmentosa.—Occurring in the anæmic or cachectic, tending to recur regularly or become chronic; appearing after midnight with restlessness, stinging, burning sensations, *worse* from scratching, cold, *better* from warmth.

Acrodynia, Pellagra.—Arsenic is likely to be indicated in some cases by the presence of one or more of its prominent characteristics.

Purpura.—In the asthenic with unusual lassitude and malaise; purpura hemorrhagica following periodic fever or attended with febrile exacerbations;

in the epidemic form, especially when lesions are situated on neck, trunk and thighs.

Rosacea.—In debilitated or malarial subjects, when aggravations are attended with burning sensations and affected skin is very intolerant to mild, local stimulation. Dirty, rough, dry appearance of contiguous skin.

Herpes facialis or progenitalis.—When accompanied with intense burning, irritated by the slightest friction and occurring periodically may be often cured with arsenic.

Herpes zoster.—Debilitated subjects, preceded by intolerable neuralgic pains, anxious restlessness and fear of attack; pains change into intense burning with the development of vesicles, *worse* at midnight and from cold applications, *better* from warmth.

Scleroderma.—Early stages when the skin is thickened, dry, scaly, yellowish, and the general symptoms call for arsenic.

Perforating ulcer of the foot, Diabetic gangrene, Hysterical gangrene.—The dry gangrenous *lesion* probably due to local derangement of nutrition from peripheral nerve influence will point to arsenic as a remedy when the general symptoms in a measure correspond.

Carbuncle.—Large, swollen, dark red or purplish area burning like fire, attended with prostration and anxious restlessness. Symptoms *worse* after midnight. Local sensations *worse* from cold, *better* from warm applications. After sloughing slow and malignant in course, with bluish areola and bluish base.

Lupus vulgaris.—Ulcerative stage or type, with bluish or violet redness of adjacent skin, subject to periodic exacerbation, unusual burning sensations or painful sensitiveness, *relieved* by warmth. Indolent, scaly form. intolerant to local stimulation, which causes burning and soreness. Progressive emaciation, prostration and periodic aggravation of symptoms or conditions.

Leprosy.—Hypersensitive erythematous patches followed by loss of or lessened sensation and change of color to yellowish brown. Periodic increase in number or size of patches. Livid tubercles becoming bronzed, painful on pressure. Burning sensations in various parts, prostration, restlessness at night. General *aggravation* from cold and *amelioration* from warmth.

Erysipelas.—Of face or head attended with cedematous swelling, unendurable, burning, anxious restlessness, frequent thirst, prostration. *Aggravations* from cold, after midnight, *relief* from warmth. Tendency to vesicular or gangrenous changes.

Epithelioma, Paget's disease, Carcinoma, Sarcoma.—Indurations and ulcerations, chronic in course, attended with excessive burning, soreness, and unusual sensitiveness after destructive local applications. Emaciation, prostration, cachexia. Symptoms *worse* at night. Recurrent or inoperable cases may be delayed in course by arsenic.

The best remedial *dose* of arsenic can hardly ever be the same in any two cases of skin disease. When the general local symptoms and modalities of the disease simulate those characteristic of arsenic, it may be administered con-

fidently in the higher attenuations (sixth decimal and above); but when the surface conditions only call for it, as a rule, lower and lower attenuations must be given until a response is noticeable; then sometimes the dose can be lessened a fraction.

ARSENICUM BROMATUM

If to the characteristics of arsenicum we add the cutaneous effects of "bromism" we obtain a fair conception of the scope of action of this salt on the surface tissues. The general symptoms are chiefly those of arsenic, the local those of bromine. Papulo-pustular *lesions* bordered by a deep red areola varying in size and depth, slow in onset and course, often "blind" and even after spontaneous rupture slow to resolve, extremely sensitive at the periphery and sometimes anæsthetic at the centre, with a tendency in persistent cases to form compound lesions, and to occasionally ulcerate or pursue a malignant course are the principal objective features of the eruption.

Acne occurring in the cachectic or scrofulous may present good indications for the bromide of arsenic. Such cases are usually worse on the hairy parts of the skin; the eruption extends beyond the ordinary limits of the disease and pursues an indolent course.

Hydradenitis suppurativa may present pathological and objective similarity to the effects of bromide of arsenic, and it should be considered in selecting a remedy.

Rosacea.—In the second stage when the *general* indications point to arsenic and the *local* approach the conditions described above, especially if the papulo-pustular lesions are widely distributed over the face, and the disease is *aggravated* in the spring.

The third decimal attenuation of bromide of arsenic is a suitable dose for most cases.

ARSENICUM HYDROGENISATUM

When the symptoms indicate arsenic and are characterized by *violence* in their onset and course, and the lesions early show a purplish or violet tinge of color this drug may be considered.

It gave apparent and prompt relief in the early stage of acute **lichen planus** under the writer's care. Too little is known of its therapeutic scope to speak with any certainty of its place in the treatment of skin affections.

ARSENICUM IODATUM

Arsenic and iodine produce like symptoms to a limited extent. Together they form a superior remedy to either alone in a few affections of the skin. This salt gives rise to primary *lesions* of papules which pass into vesicles or more commonly into papulo-pustules. Their evolution is usually attended with itching—*worse* from washing; if the disease has persisted for months, cervical or lymphatic glands are found swollen, and in scrofular types the enlarged glands may precede eruptive outbreaks.

Acne occurring in the debilitated or tuberculous, who suffer from cardiac weakness and loss of flesh, may be helped with the iodide of arsenic. The characteristic *lesions* are hard shotty papules, sometimes infiltrated at the base, and becoming pustular at the apex only; these often develop rapidly, but disappear slowly if not treated, nearly always feel or look *worse* from washing or any local stimulation and ultimately leave scars. Enlarged glands and nervous irritability are further indications for this drug.

Acne varioliformis has been cured with the iodide of arsenic. The indications for it are chiefly objective and pathological.

Among diathetic affections this salt is especially adapted to forms of subacute or chronic **eczema** dependent on a depraved nutrition, even when the appetite and apparent ability to digest food remains. Such eczemas may be localized on the hands, face (beard) and genitals, or be more or less generalized over the surface. The primary lesions are usually papules or papulo-vesicular, and later some may pass into the pustular stage. Their evolution is attended with great itching, *worse* from washing. If the disease has persisted for months the cervical or other lymphatic glands are found swollen, and in scrofulous types the enlarged glands may precede the eczematous outbreak. The **tuberculous eczema** or eczemas associated with scrofuloderma, whatever the form of lesion, may obtain relief from the action of this drug.

Lichen scrofulosorum, even when unattended with eczematous symptoms, may show at times an intolerance to irritation (scratching), which, together with adenopathy and the situation of the papules at the pilo-sebaceous follicles, are good indications for the iodide of arsenic.

Distinctly papular varieties of eczema sometimes described as **eczema lichenodes**, **lichen eczematodes**, **lichen simplex**, which commonly develop an intense itching from scratching, with perhaps some oozing from the summits of the purplish-red excoriated papules, may be benefited or cured with the arsenicum iod.

In **lichen planus** presenting indications for arsenic the author has found the iodide serviceable when the former failed to give appreciable benefit.

Prurigo.—Itching as from flea bites over a wide surface both day and night, especially arms and hands, *worse* from washing; dryness of skin with a tendency for the excoriated lesions to mature; in thin, anæmic or scrofulous children with poor circulation.

Rosacea.—Second stage in scrofulous subjects with transparent whiteness of unaffected skin and a preponderance of hard papules or small papulopustules on the bearded portion of the face, burning or itching after washing.

Sycosis.—Hard, shotty papules on the infiltrated base, becoming pustules, some leaving scars. Burning, itching sensations, *worse* from bathing. Enlarged lymphatic glands in chronic or scrofulous cases. In debilitated subjects troubled with cardiac weakness, night sweats, etc.

Tuberculosis cutis, Lupus vulgaris, Scrofuloderma.—Emaciation, weak circulation, nervous irritability. Various lesions tending to first suppurate at comparatively small points which extend or multiply and ultimately leave scars. Sore burning *sensations* sometimes *aggravated* by washing or stimulating local treatment.

Syphilis.—Secondary papulopustules which tend to ulcerate freely, attended with bodily weariness, heaviness of the limbs, general anæmia and swollen lymphatic glands.

Epithelioma, Paget's disease.—Indurations which ulcerate with comparative rapidity; *burning* pains, *worse* from washing parts; mammary tumor, with retracted nipple, becoming sensitive and subject to burning pains; cachectic anæmia, cardiac weakness.

The dose of iodide of arsenic must usually be low, seldom higher than the third decimal.

ASTERIAS RUBENS

This drug may be considered in the selection of a remedy for **psoriasis** occurring in neurotic subjects with cutaneous lesions predominating on the left arm and chest. Such association with neuroses (particularly epilepsy and chorea) must be rare, but in a disease so difficult to cure as psoriasis all phases of a case must be studied and treated.

It may also be considered as a remedy for **herpes zoster** of left breast or arm when the neuralgic pain extends from before backwards, especially in neurotic subjects who are hysterical and cannot keep quiet.

It may be given in the sixth decimal.

AURUM—AURUM MURIATICUM

The soluble salt of gold meets all the indications for the metal in skin affections. This drug produces a physical and mental depression, resembling, in some respects, the syphilitic cachexia or the constitutional effects of mercury, with a tendency to structural changes in various tissues. On the skin disorders of perspiration, pigmentary, papular, nodular, vesicular and pustular *lesions* have been noted. The chief *sites* of disturbance are the inner thighs (sweat), face, neck, behind the ears and on the legs. *Sensation* is not important—burn-

ing, itching and crawling are most common. Conditions or sensations are usually *worse* at night, in the open air, from walking, and are *better* after sleep.

Local **hyperidrosis** of the inner thighs occurring in the cachectic, melancholic, or in old age, may be relieved with aurum mur., particularly if the modalities correspond.

Cachectic acne of the face occasionally calls for aurum mur. when there are few or no comedones associated with the papules and pustules, the lesions are unusually red and more numerous on the nose, are made *worse* by exercise in the open air, by sexual reflexes (flushing of face), and when the subjects are melancholy about their diseases.

Erythema nodosum, erythema induratum.—Elevations on leg and below knee, changing to nodosities under the skin; elevations on legs and calves looking like blotches from the stinging of nettles, burning, and feeling like knots; of a dirty yellowish color; wheals under skin on leg; over heel and behind knees; in persons with weak circulation and cardiac oppression, with or without cachexia; with sensations and conditions *worse* from walking, the open air, and *better* from rest in recumbent position and after sleep.

Acanthosis nigricans.—Aurum should be studied in cases of this rare disease from its influence on pigmentation, etc.

Tuberculosis cutis, Lupus vulgaris, Scrofuloderma.—Beginning in or near the mucous outlets; fetid, purulent or offensive secretion. Deep ulcers with sore boring pains, *worse* at night and when out of doors. Hysterical despondency, tremulous weakness, great sensitiveness to cold.

Leprosy.—Small and large blotches of a dirty yellow color, brownish elevations on the nose, lump in groove between nose and cheek; destructive process affecting bones of nose, with offensive discharge. Melancholy but disinclined to talk about sickness.

Syphilis.—Destructive lesions of secondary or tertiary stage, with nocturnal aggravation of pain. Disgust of life, suicidal thoughts, rapid questioning without waiting for answer.

Aurum mur. should rarely be employed above the sixth decimal attenuation. Often the third or fourth is more serviceable.

BARYTA CARBONICA, ACETICA, IODATA, MURIATICA

The barium salts may be useful in skin affections appearing in the scrofulous or presenting a resemblance to the scrofulous type. The eruptions are apt to be indolent in behavior or so-called "unhealthy" in course, becoming pustular and not responding readily to treatment. The surface tissues lack vitality, the oil glands may be affected, the feet or hands sweat excessively, and the subject may look prematurely old. In fact, as in the aged, local or general stimulation often gives a corresponding though temporary improvement.

Hyperidrosis of the feet or hands in scrofulous subjects, obstinate in course, *worse* while at rest in the morning, and *relieved* by exercise out of doors, may be helped with baryta carb.

Steatoma, or a tendency to the formation of fatty tumors, may (in suitable subjects) be arrested with baryta carb.

Acne (simplex or indurata) is likely to be benefited by baryta when the lesions continue to appear persistently, associated with comedones, signs of scrofula; only sensations of tension are felt in or about the lesions, *improvement* follows from local stimulation (friction, etc.) of the affected skin and *aggravations* follow the use of alcoholic beverages.

The carbonate is to be preferred, except when the pustules are unusually numerous and persistent, then the muriate may be more effective.

Alopecia prematura in the scrofulous should lead to a study of baryta carb.

In **eczema** the lesions indicating the barium salts are papulo-vesicular and papulo-pustular, either generally distributed or situated on the thighs, back, arms, chest and about the genitals. In young children the eruption may predominate on the face, ears or head, and the cervical or occipital glands will be found enlarged and not infrequently the tonsils will be found hypertrophied. Itching may be absent but is often severe, and is usually *worse* in the morning, on walking, from rest in the daytime and from bathing; it is *relieved* by scratching (sometimes changed into a sore sensation), and all symptoms by exercise out of doors.

The carbonate of barium is usually employed, but when there is well-marked mental or physical depression or the lesions are pustular or persistent the muriate is to be preferred.

Lichen scrofulosus, almost an unknown disease in America, ought to be favorably influenced by the action of baryta carb. or baryta mur. Possibly the iodide of barium might prove the preferable salt. Clinically it has been found curative in scrofulous affections of the glands.

Keratosis senilis may be arrested or mitigated by the internal administration of baryta acetica or carbonica when the symptoms indicate one or the other of these salts.

Keratosis palmaris et plantaris, with a history of sweating of the palms or soles among the primary symptoms, followed later by a dry, thick parchment-like condition of the skin on these surfaces and a dry, scaly condition of the skin on the dorsal, is likely to be benefited by baryta carb. Mental dullness and weakness has been observed in some of these cases very like that ascribed to this great tissue drug. For the congenital and rarer variety sometimes associated with *nævi* on other regions of the surface baryta mur. is the better suited. Indeed, what is known of the action of this salt on the central nervous system places it in a nearer relationship to symmetrical keratosis.

Tinea circinata.—Which spreads actively from lack of cutaneous resistance. Especially in the scrofulous or poorly nourished.

Tuberculosis verrucosa, Scrofuloderma.—In undeveloped or prematurely

old children or adults. Enlarged glands slowly undergoing softening and spreading to other parts. Frequent attacks of tonsillitis or quinsy, great sensitiveness to cold air; sweating of feet and hands. Burning or pricking sensations *worse* from rest, while thinking of symptoms and mornings, *better* from open air exercise.

Colloid degeneration of the skin.—This rare affection may call for baryta when signs of presenility or scrofula are found, or a history of frequent attacks of sore throat after exposure to cold is given, and the skin disease first appeared after a series of exposures to the elements.

Lipoma.—Fatty tumors about the neck or back; in scrofulous or prematurely old subjects, who lack physical or mental energy or are subject to hyperidrosis.

Verruca.—Rapid development of warts or increase in number in individuals with enlarged glands, poor circulation and sensitiveness to cold.

The carbonate of barium is most often indicated, especially when the tonsils are diseased and the patient appears aged beyond his years. The iodide when the patient is of stunted growth, and a large number of different kinds of glands (tonsils, lymphatic, testes, prostate, etc.) are affected.

The barium salts may be given for their effect on the skin in the sixth to twelfth decimal attenuation.

BELLADONNA

Among the many important effects of belladonna on the human organism are hyperæmia and hyperæsthesia of the skin. These effects are believed to arise from the toxic influence of the drug on the nerve centres. In an analogous way acute congestions and inflammations of the skin originate from the poisonous or irritant effects of organic products in excess or abnormally present in the system. *Aggravations* of symptoms occur from touch, draft of air, from warm to cold air and from direct heat (sun or fire). If the diffused congestion is intense or prolonged enough, the skin, especially of the face, becomes puffed, but remains dry and later may desquamate, or in circumscribed patches of inflammation necrosis of the tissues may occur. It is chiefly in the early stages of cutaneous hyperæmias occurring in the plethoric and presenting similar symptoms to belladonna that it does its best work.

Miliaria rubra.—Belladonna is curative when the onset is attended with little or no perspiration; the affected skin is very dry, red and sensitive, and the patient is excited or stimulated by the cutaneous efflorescence.

Acne occurring in the plethoric or in those subject to flushing of the face, which is slow to subside, with bright red papules and intervening skin of a fainter red, accompanied with a fine stinging sensation and sensitiveness to touch, *worse* during menstruation and from any excitement, may be frequently relieved in the early stage with belladonna. Rarely this is a good remedy when pustules form rapidly, but never in advanced cases.

Erythema scarlatiniforme, E. multiforme, E. nodosum, E. induratum.—Belladonna may be indicated in the early hyperæmic or even later stages of any of the forenamed affections by the bright red or scarlet hue of the erythema, sensitiveness to touch, burning, smarting or itching sensations, with *aggravations* from drafts of air and from direct heat.

Acute or subacute erythematous eczema of the face occasionally presents a striking objective and subjective likeness to the described effects of belladonna on the skin, and then, if given early in the attack, often promptly relieves if it does not complete a cure.

Dermatitis exfoliativa and **pityriasis rubra** present surface conditions and symptoms in their early stages not unlike the effects of belladonna. In the former the appearance of diffused patches of livid red shining skin, sometimes ushered in with fever, the occasional involvement of the mucous membranes of the naso-pharynx and conjunctiva, the persistent dryness of the skin and the final tendency to furunculosis are the chief points of resemblance. In the latter rarer and graver disorder its apparent primary origin as a vast superficial hyperæmia of the skin, circumscribed or diffuse but spreading, gives a basis for hope that this drug might prove helpful in cases possible to cure.

The above diseases are apt to appear in the more vigorous periods of life and independent of antecedent disorder, and belladonna is most useful for the natural active and plethoric individual, and in the active or early stages of congestion and inflammation.

Dermatalgia.—In the plethoric with over-excitability of all the senses; pains come and go suddenly leaving parts sensitive to contact, changes of temperature, drafts. *Relief* from being wrapped up in a warm room.

Rosacea.—Frequent intermittent flushing of the face with sensitiveness to touch in *early* stage, in full-blooded, excitable women; especially at the menopause, or in the *second* stage when pustules rapidly form on nose and cheeks attended with heat, throbbing and sometimes twitching of the muscles of the face.

Herpes zoster.—Sudden attacks with unwonted redness, heat and extreme sensitiveness to contact; pains come and go, *worse* from warm applications; prevesicular stage.

Furuncle, Carbuncle, Erysipelas.—Early stage when there is extended redness, great sensitiveness to touch, painful sensations which come and cease suddenly, sensory excitement and fever with cerebral symptoms. *Aggravations* from drafts, touch, changes of temperature and direct heat. Especially for boils and carbuncles which develop and suppurate rapidly.

The lower attenuations of belladonna, first to sixth decimal, are most effective in cutaneous diseases.

BENZOIC ACID

This drug creates disorders in the system, with symptoms corresponding to the uric acid diathesis, and notably an offensive urine variable in quantitative and qualitative constituents, therefore sometimes hyperacid and sometimes alkaline and variable in color. The change in the skin is usually *erythematous* in nature, with *sensations* of itching, burning, often *aggravated* by scratching.

Erythema intertrigo.—Erythema between the thighs and genitals or other opposing surfaces, with pungent acid urine or sweat; in the gouty or rheumatic; with itching sensations changing from place to place and made pleasurable by scratching.

Acute and subacute eczema due to the rheumatic or gouty diathesis, with more or less characteristic urinary symptoms, may be greatly benefited by this drug. The type of eruption is usually erythematous or finely papular, and burning sensations may mingle with itching or follow scratching.

Infants and young children who have had a poorly selected diet may acquire a diathetic state, productive of eczematous eruptions and derangements of the secretions calling for benzoic acid, after correction of the diet. More often, however, in infants the cutaneous inflammation is caused by contact of the abnormal urine, and is in nature a dermatitis rather than an eczema. Here the condition of the urine is probably the same, due to the presence of modified uric acid, known as "hippuric" acid. The same indications for this drug hold good in either case.

Benzoic acid may be given in the second decimal and higher attenuations.

BERBERIS

Berberis, like some other drugs, may be indicated chiefly by symptoms found elsewhere than in the skin. The more characteristic are often urinary or hepatic in location, but its pains may be more widely distributed and may be described as *shooting*, tearing, sticking, cutting and burning in quality, while in the affected skin itching, crawling and bruised *sensations* are felt. Through its action on the vaso-motor system berberis produces a capillary venous stasis and a transudation of blood coloring matter into the skin, thus staining (mottling) the surface. It also seems capable of exciting inflammation of the skin reflexly from organs for which it shows a distinct affinity.

Acne simplex or indurata.—Berberis is curative in acne due to reflexes from hepatic, urinary, hemorrhoidal or menstrual troubles, when the lesions begin as hard distinctly red papules with a darker areola; and whether they subside by resolution or after suppuration leave brownish pigmentations. The pimples are usually *sensitive* to touch and heat and are temporarily *relieved* by cold applications.

In **eczema** any form when the *hepatic* or *urinary* symptoms of berberis are found, this remedy may be given with confidence if the case is curable. Eczema of the *anus* and of the *hands* are the most characteristic in location; the papulo-pustular form of lesion with an unusual areola and leaving stains as resolution begins is the most common type of eruption. Circumscribed pigmentation of the skin following eczematous inflammation is almost a keynote for berberis. The local sensations of itching, burning, etc., are made *worse* by scratching, warmth, walking, pressure, and may be temporarily *relieved* by cold applications.

Lichen planus is attended with considerable pigmentation of the skin, which becomes more apparent as the primary lesion subsides. When the eruption occupies its classical situation on the inner surface of the forearms, berberis is indicated by location and by the sensation which generally attends an outbreak of the eruption on the arms. A pathological relationship may also exist, as lichen planus is believed to arise primarily from some vaso-motor disturbance leading to an engorgement of the superficial capillaries of the skin. The presence of urinary or hepatic symptoms in a case of lichen would likely give the remedy greater curative value.

Purpura, Peliosis rheumatica.—Dusky red petechial spots on arms, fore part of shoulders, feeling like a bruise when grasped; vibices near external condyle of elbow; rheumatic lameness, stiffness and bruised sensations in back and extremities, or shooting pains in region of kidneys with urinary symptoms.

Urticaria pigmentosa.—From hepatic, urinary and gastro-intestinal reflexes; dusky color in centre of lesions, with shooting, sticking, burning, bruised or rheumatic sensations.

Berberis acts best in the low attenuations, and often the tincture is required to produce the best effect.

BORAX

Biborate of soda acts on the tissues of the mucous membrane, the skin and its hairy appendage, and produces a general nervous sensitiveness which finds its greatest emphasis in the shrinking from *downward motion* of any kind. A natural aversion to going down a steep flight of stairs, to walking or driving down hill, etc., may be taken as a good indication for this drug. On the hair it produces a characteristic effect, causing the end to turn on itself and become tangled, and it may cause inflammation of the hair follicles. The skin lesions are not very characteristic, but resemble forms of superficial congestion or inflammation, accompanied with itching, stinging, crawling, burning and tensive sensations. These are *worse* from pressure and are *relieved* somewhat in the open air.

Acne.—Papular acne of the cheeks or chin associated with inflammation of the mouth or naso-pharynx or with the peculiar nervous symptoms of borax may be cured by its action.

Distichiasis.—Whether acquired or associated with inflammation of the muco-cutaneous surface of the lids, indicates borax even when other characteristic symptoms are lacking.

Plica polonica, Neuropathic plica.—Objectively borax is indicated in plica polonica, though causal treatment is most indicated. In the rare neuropathic plica, borax ought to be especially curative.

Erythema caloricum (chilblains).—Red spots on the face, toes, feet, legs or fingers, with itching as from freezing, or crawling sensation, *relieved* in the open air.

Erythema traumaticum.—Persistent redness of the skin from slight injuries, with itching or stinging sensations; *better* out of doors; erysipelas-like redness (erysipeloid) of face, leg or foot, with tension and burning, *worse* from pressure.

Trade eruptions.—Redness and soreness on the back of fingers, joints and hands, with intense itching, biting and stinging sensations and an irresistible desire to scratch them violently; in grocers, bakers, butchers, etc.

Psoriasis and pityriasis rosea in some forms may resemble the mild dermatitis caused by borax, but these dermatoses are not often associated with the aphthous type of inflammation of the mucous membranes or the peculiar nervous symptoms of borax. A natural aversion to going down a steep flight of stairs, to walking or driving down hill, etc., may be taken as a good indication for this drug. Lesions of the mucous membrane and psoriatic patches indicating borax have no tendency to heal and bleed easily on artificial irritation, but aside from this not unusual feature and the peculiar nervous characteristic of borax we have no reliable indications for its use in surface diseases. On the hair it produces a characteristic effect, causing the end to turn on itself and become tangled.

Only the lowest attenuations have proved beneficial in the author's experience.

BOVISTA

This fungus, acting on the peripheral blood-vessels, causes circumscribed forms of inflammation of the skin in the shape of papules, vesicles and pustules. The eruption is attended with persistent itching which is *worse* in the morning, from general warmth (in hot weather), from washing and is *not relieved* by scratching; hence the affected part may be torn or rubbed until it is raw and oozing, in the vain effort to get relief. This artificial irritation leads to the formation of abundant crusts not to be ascribed to the drug. The uncovered parts of the skin are points of selection, or the common sites of vesicopustular eczema in children. Three general indications for bovista are *heaviness* and *fullness* in the head, *irritable sensitiveness* to almost everything, and *motor weakness* and *unsteadiness* simulating *awkwardness*.

Acne.—Acne of the face, worse in the summer, occurring in sensitive,

awkward boys or girls, may be frequently cured with bovista. It is also a good remedy for acnoid eruptions due to overuse of cosmetic powders or pastes.

Trade eruptions.—Erythematous or papular eruptions on the hands or arms, due to occupations (grocers, bakers, masons, etc.), attended with itching and soreness, *worse* in warm weather and from washing, *not relieved* by scratching; in irritable, sensitive persons with fullness in the head and muscular unsteadiness.

Eczema of the ears, face and scalp, occurring in infants and children, which are or have been scratched or rubbed persistently at every opportunity, particularly in the morning on waking or after washing, and on which thick crusts form when permitted to do so, will nearly always respond to the action of this remedy. If the child is at the same time sensitive, irritable or awkward, the response is likely to be more prompt.

In adults the eczematous lesions calling for bovista are usually distinctly red papules or papulo-vesicles, and located on the back of the hands or fore-arms. These are sometimes classed as "occupation eczemas," that is, eczema essentially due to the eczematous diathesis, but excited by frequent contact with foreign substances, as in the occupation of bakers, grocers, etc. Rarely a similar form of eruption is seen on the feet and legs, not excited by externally acting agents, but presenting like indications (above noted) for bovista.

Pruritus, P. ani.—General or local itching, *worse* from warmth, mornings, washings, from scratching, or the latter changes the sensation to burning; especially adapted to pruritus of anal region and of feet and legs.

Urticaria.—On waking in the morning, in warm weather, with persistent itching, *worse* from bathing, not relieved by scratching.

Acrodynia, Pellagra.—Some *general* and *local* symptoms of those affections correspond to those produced by bovista.

Medium attenuations, third to sixth decimal, are most reliable.

BRYONIA

The general action of this valuable remedy needs no mention here. Excluding the exanthemata it occupies a small place in the dermatological therapeutics, and then there probably exists an underlying rheumatic or analogous diathesis which affects the fibro-muscular structures of the skin and subcutaneous tissue. The fibro-muscular tissue of the skin is called into action by changes in external temperature, and we find the *time aggravations* of bryonia correspond with the morning and evening variations of temperature, and, that while the drug is indicated for eruptions appearing in *warm* weather, local relief is sometimes obtained from artificial warmth. The perspiratory function is often deranged—suppressed or stimulated under different states. The surface lesions are more often small, closely situated papules rather widely distributed, occasionally becoming minutely vesicular, or the eruption may be fine enough to constitute a rash, but is never a distinct erythema.

Miliaria and miliaria rubra.—This warm weather affection often calls for bryonia from the presence of a fine papular, papulo-vesicular or a clear vesicular eruption (either due to suppression of or too abundant perspiration), mental irritability, aggravation from exercise, etc.

Seborrhœic dermatitis.—The adaptability of bryonia to hot weather affections is occasionally shown in cases of dermatitis, apparently due to excessive and oily transpiration (the sebaceous and sweat glands both seem to participate in the increased action). Biting, burning, itching, and other sensations are usually pronounced in such cases, and are always *worse* from walking, scratching, sweating and toward night; and are *better* from rest, particularly in a horizontal position, and sometimes from warmth.

In children an **eczema** is occasionally seen which begins in warm weather, and presents symptoms similar to those credited to bryonia. The eruption may be quite general over the neck and trunk, less or not at all on the extremities. In the beginning the efflorescence may resemble miliaria rubra, but the symptoms and course are clearly eczematous. The author has seen such cases quickly respond to the influence of this drug.

On the deeper structures of the skin and subcutaneous tissue bryonia may imitate a hypertrophy of the connective tissue (with or without œdema) akin to the changes which occur in two rare diseases known as **sclerema neonatorum** and **œdema neonatorum**.

Urticaria.—In warm weather, generalized, appearing after sweating or subsequent to suppression of sweat; itching *relieved* by full efflorescence of eruption, local warmth and pressure; *worse* from motion and standing; associated with rheumatic pains and mental irritability.

Purpura, Peliosis rheumatica.—In warm weather following a cold spell; aching and weariness in all the limbs, *worse* from motion, *better* from rest, warmth and hard pressure; on extremities, especially about knees.

Scleroderma.—Symmetrical wherever situated, with swelling, tension, drawing, stitching, weakness, tearing or stiffness of parts, *worse* from motion, *better* from warm wraps; associated with easy or profuse perspirations and mental irritability.

Hughes says bryonia has long enjoyed a popular repute in the scleroderma of horned cattle, and that Dr. Mayshofer proved it on three oxen, in each producing the primitive symptoms of the disease. I have myself found it beneficial in scleroderma of adults, though it is far less often indicated than rhus tox.

Bryonia is administered in a wide range of dilution from the tincture upwards. Probably in cutaneous affections the first to twelfth decimal is wide enough, and for marked changes in the subcutaneous tissues it must be given in the lowest and possibly at times in the tincture.

BUFO

While the action of this medicine is not clear, its effects on the nervous system and the skin point to its value in rare conditions of the latter due to nerve disturbance and characterized chiefly by vesicular and bullous *lesions*, located on soles, palms, fingers, hands and feet, filled with yellowish excoriating fluid. The lesions may rupture, reach a large size, exfoliate and leave raw or smooth, reddish-brown spots. *Sensations* of itching, tingling or burning may precede or attend the outbreak.

Pompholyx.—In neurasthenics, depressed or epileptoid subjects; attended with itching or burning sensations, *worse* from friction of clothing or light contact; especially by symmetrical eruption limited to some portions of hands or feet.

Pemphigus.—Preceded or attended with febrile or nervous disturbance; in neurotic girls with menstrual irregularities; when eruption is limited chiefly to hands, feet, ankles, legs or arms, with pruritic sensations.

Pemphigus foliaceus.—Yellowish bullæ which soon rupture and discharge an excoriating fluid, leaving more or less exposed a red, purplish, raw surface exuding ill-conditioned fluid; attempts at repair show in spots of thin, slimy skin, with sensations of burning and soreness.

Bufo may be given in the sixth decimal attenuation.

CADMIUM SULFURATUM

Little is known regarding the mode of action of this drug, but it may be inferred from its meagre symptomatology that it acts primarily on the blood and induces circumscribed hyperæmia, transudations of blood coloring matter, and sometimes hemorrhages. On the skin it may cause the appearance of erythematous or pigmentary macular and vesicular *lesions*; almost exclusively located on the face or extremities. *Sensations* of crawling, itching or numbness may be felt, but are not pronounced and may be absent. Conditions or symptoms may be *worse* from drafts of air, open air, in sunshine, from stimulants, grief and vexation, and *relieved* by eating and rest.

Chloasma.—Yellowish stains on nose and cheeks, brown on chest and arms, *worse* after exposure to sunshine or wind and from depressing emotions.

Erythema caloricum (chilblains).—Bluish redness of the skin; erysipelatous redness of the nose with crawling sensations or with itching when touched; from cold, and *relieved* by scratching, which may excite a pleasurable sensation.

Cadmium acts well in suitable cases of cutaneous disease in the third decimal attenuation.

CALADIUM

This substance acts prominently on the entire mucous membrane (markedly on the alimentary tract) and on the skin. It excites in both regions characteristic sensations, and is more valuable as a remedy in cases involving both structures.

Pruritus vulvæ, P. vaginæ.—In all primary cases, especially when reflex from the alimentary canal or toxins of indigestion; itching in small spots and usually *worse* in late afternoon, before midnight, while driving, *better* from walking.

Urticaria.—On chest associated or alternating with asthmatic breathing; reflex from gastric irritation, with eructations of gas; sensation as if stomach were full of dry food, dryness of mouth and thirst with *aversion* to cold water, fluttering in abdomen as of a bird, with nausea; with sudden itching or burning in small spots, *worse* before midnight.

Rosacea.—Nose and forehead. at first in small spots, *worse* after eating, sleeping in daytime; crawling sensations; especially when due to or aggravated by gastric symptoms characteristic of caladium.

The third decimal is suitable for use in cutaneous diseases.

CALCIUM SALTS

Lime is a normal constituent of nearly every solid and liquid of the animal organism, and these salts are classed by some with other elements found in the system and possessing medicinal powers as "nutrition" remedies. There is abundant evidence also to indicate that the disturbances produced by these salts are largely by the assimilative processes and correspond to conditions found in scrofular, tubercular, and in a greater or less degree to other general or local derangements of nutrition. Such disturbances may go on to produce various forms of inflammation. Whether the action of these preparations is purely nutritive or not is an open question of minor importance in view of their well-known remedial virtues. There is abundant evidence, however, to indicate that the disturbances produced are largely through the assimilation process, and correspond to conditions found in scrofula, tuberculosis, and in a greater or less degree to other general or local derangements of nutrition. Studied from this basis, the lime preparations may be indicated at times in a large number of cutaneous affections. The carbonate, fluoride, phosphate and sulphate have been verified in a number of diseases classed as diathetic.

CALCAREA ACETICA

This salt is influenced by the acetic acid component, and besides inducing a general cachectic anæmia, it shows an affinity for the mucous membranes and causes redness and desquamation of the skin.

Seborrhœic dermatitis of the vermillion surface of the *lips* may be cured with calcarea acetica when other indications correspond, especially when the lips are very dry before cracks form, and an itching, crawling sensation is felt, obliging the patient to repeatedly moisten them with the tongue.

CALCAREA CARBONICA

This drug suits best those who are fair of skin, over fat, large of abdomen, perspire freely, are sensitive to cold and are easily fatigued.

Seborrhœic dermatitis of lips.—This salt is indicated when the upper lip is chiefly affected, swollen, cracked, and the features and conditions indicate the scrofulous constitution.

Alopecia prematura.—When loss of hair occurs in fat subjects from lack of nutrition, from disease or constitutional weakness, and has been preceded by excessive sweating of the head or by eczema or seborrhœa of short duration, cal. carb. will sometimes help to renew the growth in subjects below middle life.

When an **eczema** is engrafted on this constitutional type, possessing only a moderate resistance to disease, it is usually of the vesicular or pustular form, producing thick crusts, offensive to sight and sometimes to smell, on the release of sero-pus beneath. In chronic cases fissures are apt to form and become the seat of a purulent exudation, or the disease may assume the squamous type. Itching, burning or sticking sensations are *worse* morning and night, from washing, from cold; and are *better* from indoor warmth. The exposed portions of the skin, such as the hands, face and ears, are favorite sites of the eruptions. Most cases occur in infancy and childhood, and enlarged cervical glands are a frequent concomitant feature. Occasionally in adult life the characteristic weeping and crusting lesions are found on or behind the ears, and rarely a more generalized papulo-pustular eruption calls for this drug.

Lichen scrofulosus probably exhibits good indications for calcarea carb. in some cases. **Keratosis pilaris** occurring in scrofulous children has been greatly relieved by the persistent administration of this remedy.

Urticaria.—Whitish wheals which itch intolerably; elevated stripes over tibia; always disappear in cool air; when general conditions call for the drug; chronic cases.

Nævus pigmentosus, Verruca.—When apparently due to constitutional

conditions; fair, over fat children, sensitive to cold, perspire from slight exertions and easily tire. Especially when lesions tend to increase in size or multiply.

Clavus.—Associated with cold moist feet and systemic indications for calcarea carb.

Acromegaly, Myxœdema.—Calcarea carb. might be indicated in these rare affections by weariness on exertion, sensitiveness to cold, easy perspirations, a history of scrofula or evidences of calcareous degenerations.

Mycosis fungoides.—In cases beginning with urticarial lesions, changing to warty growths, with simultaneous swelling of the lymphatic glands. Great sensitiveness to cold, perspirations from slight effort, cachectic debility, etc.

CALCAREA FLUORATA

This salt is adapted to secondary forms of skin disease or to secondary changes in the dermal tissues. According to Schüssler's biochemic theory, it acts on the fibro-elastic tissue of the blood-vessels, lymphatics and the skin. When these fibres are relaxed dilatation of the vessels occurs, the connective tissue loses its normal resistance and infiltration and induration of the part may follow.

In **eczema**, due to venous hyperæmia, located especially on the legs, *worse* in damp weather, from standing or walking (hence in daytime), and *better* from the recumbent position (hence at night) cal. fluor. is often a serviceable remedy. Chronic *squamous* forms of eczema attended with thickening and cracking of the skin, and an apparent loss of all tendency to resolution in the diseased parts, even after the underlying diathesis has been controlled, may quickly improve under the action of this drug. While the palms and soles are the parts for which this remedy has the greatest clinical affinity in the existence of squamous conditions, it may prove beneficial whatever the location. For eczema of the *anus* consequent to hemorrhoids and exhibiting a thick, relaxed or redundant state of the affected skin, deeply folded on itself and sometimes simulating fissures, cal. fluor. is very often indicated. Occasionally the above forms of eczema may be seen in scrofulous subjects, rarely a very *hard* swelling of the lymphatic glands may be observed, but, as a rule, this salt does not appear indicated for the scrofulous proclivity nearly so often as cal. carb.

Psoriasis of the extremities, uncommonly hyperæmic, of a deep reddish tint and presenting some of the modalities of cal. fluor., may be improved by the administration of this salt.

Keratosis palmaris et plantaris, which probably originates from a moderate vascular stasis if not capillary varices in the most superficial vessels of the skin, may present symptomatic indications for calcarea fluor., such as aggravations from damp weather and the standing position. It has been verified in this infrequent disease enough to show its therapeutic power.

In the management of *ichthyosis simplex* and *hystrix calcaria fluor.* is worthy of study. While the disease is probably a deformity of congenital origin, and there are no reliable data to encourage the use of the drug, there are pathological grounds for prescribing it, and it is not impossible that if employed at an early stage good effects might be obtained.

Actinomycosis of the legs with characteristic aggravations responded to this remedy.

Cicatrix, Keloid, Fibroma, Neuroma, Xanthoma, Myoma, Angioma, Angiokeratoma, Telangiectasis.—*Calcarea fluorata* may be indicated in the forenamed affections on pathological grounds, or symptomatically by the presence of dilated capillaries, hyperæmia, *aggravation* of associated symptoms in wet weather, general *relief* on lying down, and locally from friction. Especially suited to persons of weak constitutions and to middle life.

CALCAREA PHOSPHORICA

This is one of the tissue remedies particularly adapted to affections occurring in the extremes of life, youth and old age. In youth it is the anæmic, and less often the anæmic from too rapid growth, that calls for this salt. In old age defective regeneration of tissue is apparent either too early, suddenly or in special directions. Modalities of cal. phos. are very like those of the fluoride. The *relief* of most symptoms from taking the recumbent position is even more marked than characterizes the latter. While the phosphate is closely allied to the carbonate of lime, it is distinguished by leanness, rather than by over plumpness, and a sallow or dirty white complexion of the brunette type rather than the fair skin of the blonde type, suggestive of the carbonate. The existence of a non-specific cachexia as the probable perpetuating cause of a skin eruption may be counted as a good indication for cal. phos.

Acne simplex.—In thin anæmic boys or girls, at puberty, who have grown rapidly, or who suffer from headaches after close mental application. The *lesions* may be few or many, have little or no areola and the contents of the pustules are whitish rather than yellow.

Fragilitas crinium.—Where there has been a history of headaches and the state of innutrition resembles the effects of this drug.

Alopecia prematura, A. areata.—In thin young women especially, when there is an absence of any local cause. nutrition is poor, headache frequent, and most symptoms are *relieved* by rest in the recumbent position.

Lentigo.—Persistent in the young, with a tendency to become worse each year; in the thin, anæmic, cachectic or too rapidly growing subject; with headache *relieved* by lying down and by mental rest.

Chloasma.—In the recurrent type, appearing in the same places before affected; in the thin, cachectic, or prematurely old; with other symptoms *relieved* by lying down.

Cachectic eczema in young people with papulo-pustular, vesico-pustular or crusting lesions, usually located on the face, ears, scalp, hands or wrists, may find this drug surprisingly curative. Itching may be intense or slight, but it is *worse* from changes of weather, especially to cold or wet, and often gives little or no trouble at night.

Keratosis senilis and **pruritus senilis** are two affections of age likely to be mitigated by the use of calcarea phos. The latter disease will be considered in another class. In keratosis senilis this remedy is indicated by changes in the color of the skin—to a waxy, coppery, or greenish hue; by a dry, harsh wrinkled or greasy condition of the surface; by eruptions (few or many) having the appearance of small exudations in or on the skin. If the subject has a gouty or scrofulous history calcarea phos. is all the more indicated. Such patients are very sensitive to atmospheric changes, especially to cold, and the skin itself is often cool to touch.

Pruritus senilis.—Itching, stinging, biting or formication of various parts of the skin; in the anæmic with many wrinkles, dryness and coolness of the surface; *worse* from cold, changes of weather, getting wet, often *relieved* by lying down.

Prurigo.—Early stage in anæmic, thin children; skin dry and cold; itching, *worse* from cold and wet.

Rosacea.—In early stages in chlorotic females, who seem prematurely aged; coolness of the surface; general symptoms relieved by the recumbent position.

Tuberculosis cutis, Lupus vulgaris, Scrofuloderma.—Thin, anæmic subjects of the brunette type, with lack of cutaneous resistance to the local spread of the disease. Especially valuable in youth or in advanced life. Symptoms generally *worse* from weather changes, cold, wet, motion; often better from lying down.

Leprosy.—Dark brownish spots on the skin, in scrofulous anæmic subjects, who feel *better* in the recumbent position.

Lymphangioma.—When beginning in infancy and probably due to embryonic defects.

Rhinoscleroma.—Calcarea phos. may be indicated in this rare disease occurring in a scrofulous anæmic subject, with stopping of the nostrils, hard swelling of the upper lip, painful on pressure.

CALCAREA SULPHURICA

A distinct and persistent tendency for eruptions to suppurate and discharge is the chief indication for this salt when other calcarea symptoms are present. *Aggravations* from contact with water is the most important modality.

Hydradenitis suppurativa.—When the nutrition is poor and there are other calcarea symptoms, this drug will sometimes cut short the chronic course of the disease.

Acne.—In calcareous subjects when pus points quickly form at the apex of most of the lesions on the face, and the eruption looks or feels worse from bathing the parts, calcaria sulph. may be prescribed.

Dermatitis papillaris capillitii.—In the early stages this drug ought to prove helpful in cases presenting calcaria symptoms.

Conglomerate suppurative perifolliculitis.—In a case of this rare affection calcaria sulph. should be compared in selecting a remedy.

Eczema capitis in infants and young children with abundant purulent exudation and yellowish crusts may suggest this drug. Pustular eczema about *both ears* occurring at any age may present indication for this remedy. In eczema of the *beard*, often beginning with or complicated by a pustular folliculitis, it is occasionally curative. These are the selective areas for calcaria sulph., but the distinct type of suppurating eczema, whenever found in association with calcaria symptoms, may prove amenable to its action.

Scabies.—Many pustular lesions slow to heal, yellowish crusts, *worse* from working or washing in water.

Furuncle, Carbuncle, Impetigo contagiosa, Lupus vulgaris, Scrofuloderma.—Later stage with abundant and persistent suppuration and without any apparent tendency of lesions to heal. Local or general symptoms *worse* from bathing.

The calcaria salts may be employed in the sixth decimal attenuation and upwards. The carbonate seems to exert its power in a very high attenuation; probably, however, this salt does as good work in the twelfth decimal as in a higher preparation.

CANNABIS INDICA

This drug acts purely on the nerve centres and nerves, often causing mental *exaltation*, disorders of sensation and secondary motor disturbances. In the skin it excites *sensations* of itching, tingling, stinging, thrilling, crawling and tension without eruptions, which may be *aggravated* by touch and *relieved* by scratching.

Pruritus.—Itching of feet, legs, scalp, face or rarely of other parts, *relieved* by scratching; in neurotic subjects who are unduly mirthful or loquacious, absent-minded or very imaginative. Pruritus *ani* with sensation of a ball in rectum or at anus. Pruritus of scalp with opening and shutting sensation, crawling and tension. Pruritus from uræmia, following auxiliary measures of treatment.

Scleroderma.—Of the legs with sensations in the knees as if clasped by birds' claws; stiffness, aching, drawing, paralyzed feelings preventing walking upstairs; stumbling, unsteady gait, especially when associated with other characteristic neurotic symptoms.

The second or third decimal attenuation is generally most efficient in skin diseases.

CANTHARIS

The effect of cantharides by local contact, and in a less degree by elective affinity, on the mucous membrane and skin is that of an irritant poison exciting a catarrhal or more profound type of inflammation. The most common sensations produced are burning, biting, smarting, rawness, itching, sticking and crawling. These are usually *aggravated* by warmth, touch, pressure, scratching and at night. Temporary *relief* is generally experienced from cold or cold applications.

Erythema caloricum, Dermatitis calorica (burns), D. venenata.—In cases attended with burning, smarting, rawness or sticking sensations, *worse* from warmth, pressure, and at night, and *better* from cold or cold application. External applications of the second decimal dilution further diluted with water sometimes afford prompt relief.

Acute vesicular eczema of the face or hands attended with burning pains, or itching and smarting sensation at the same time, with similar modalities to those above named, call for the administration of cantharis. It often affords prompt relief of the more painful sensation, but it rarely completes a cure alone. Arsenic, rhus or some other complementary drug may need to follow it. The presence of the characteristic urinary symptoms of cantharis, in eczema about the genitals, is a sufficient reason for selecting this drug. Occasionally an acute eczema of the scrotum appears to arise with or from excessive perspiration in the genital region. Such outbreaks are usually attended with burning, sticking or itching, and are helped by cantharides. External applications of 2x dilution sometimes give prompt relief.

Seldom are the lesions of **psoriasis** paræsthetic to a degree to indicate cantharis. Yet they have been observed covered with scant scales, burning and itching at times, especially *worse* from warmth, scratching and pressure. Then this remedy is worthy of trial and has been found beneficial.

Pruritus vaginæ, P. perinei.—When associated with affections of the mucous membranes with characteristic sensations, *worse* from warmth and *better* from cold applications.

Herpes.—Of face or genitals when accompanied with unusual burning, biting, itching sensations; or associated with gonorrhœa or other urethral inflammation calling for cantharis.

Herpes zoster.—Principally after neuralgic stage when vesicles have formed and sting, burn or smart, *worse* from touch, pressure, warmth and at night, *better* from cold applications.

Pemphigus may be cured with this drug when sensations and modalities correspond.

Erysipelas.—Of the face, with raw, burning, smarting or stinging sensations, *worse* from warmth, *better* from cold applications. Especially with early appearance of vesicles and associated with characteristic urinary symptoms.

Cantharis should be given in the second or third decimal attenuations; frequently the second dilution may be applied locally with comfort to the patient.

CARBO ANIMALIS

Animal charcoal disturbs tissue nutrition, weakens the digestion and other functions and causes local congestions *without* heat, and which may induce consecutive inflammation of the glandular or other structures. In the skin it may give rise to passive erythema with or without papular and pustular lesions. These are *located* chiefly on the face, hands, wrists and feet. *Sensations* of burning, tearing, tension, stinging, itching, coldness or of suppuration may be felt. Symptoms are usually *worse* from cold, from warmth of bed, from scratching, and are *relieved* by rubbing. *General* indications for this drug are sadness, weakness, desire for solitude, heaviness and confusion of the head, and a scrofulous or venous type of constitution.

Erythema caloricum (chilblains).—Dark red spots on cheeks, nose and fingers or wrists, without heat to touch; with burning, tearing, stinging, etc. Sensations *relieved* by rubbing, *worse* in the evening, in bed, from cold; in the scrofulous, with enlarged glands, prominent veins, cold and bluish extremities.

Rosacea.—Well developed cases in middle or later life with sluggish circulation and distended veins; coppery redness of cheeks and tip of nose, papulopustules with yellowish tips on forehead, cheeks and chin; with morning nose bleed; associated with indigestion, nausea, heartburn and tasting of food eaten a long time previous.

Syphilis (Secondary).—Coppery macules on face, with swollen glands, sometimes bluish hue of skin, distended veins; prostration with sense of confusion. Loss of hair.

Carcinoma cutis.—Bluish nodular growths with burning, stinging pains. *relieved* by rubbing parts, *worse* at night in bed, from cold. Especially in old people with enlarged veins, who are sad and prefer solitude.

Verruca.—On the hands or face of old people, with bluish color of extremities and occasional pruritic sensations, quickly *relieved* by friction.

The medicinal virtues of animal charcoal are largely developed by trituration, hence it should be given in powder or tablet form in the sixth decimal or higher attenuation.

CARBO VEGETABILIS

Vegetable charcoal alters the secretions of the digestive organs, deranges digestion, devitalizes the blood, and secondarily lowers nerve function to a degree simulating low types of disease. On the skin it may cause the appearance of macules, papules, vesicles, pustules, alterations in the venous capillaries, attended with unhealthy exudations, hemorrhagic complications, a tendency

to persist or change to low forms of inflammation, with burning *sensations* (even in the unchanged skin), *worse* at night. But it is chiefly in cutaneous affections associated with other conditions calling for carbo veg. that it acts best. Desire to be fanned is a general keynote.

Purpura hemorrhagica.—Occurring in the latter part of life, in the debilitated with offensive secretions, varicose veins, lack of warmth of the surface; following mental anxiety in the nervously weak; recurrent forms with bleeding from the nose, rectum or genito-urinary tract.

Rosacea.—Advanced stage with varicose capillaries on the nose; associated with flatulent indigestion from the simplest food; *burning sensations* in affected or neighboring skin; in the debilitated or neurasthenic and generally in middle or later life.

Herpes progenitalis.—Recurring type following fluctuations downwards of debility, dyspepsia or other chronic affections of the mucous membrane with mental anxiety; with varicosis of external genitals; *burning*, itching or sore *sensations* and offensive secretions.

Carbuncle.—Ulcerative stage or gangrenous appearance, with *burning* pains *worse* at night, coldness of the extremities; debility and faint-like weakness, especially on exertion.

Lymphangioma, Lymphangiectasis.—Associated with dilated capillaries or originating from ulcers; discharges of lymph and blood. Especially in persons of low vitality, with disorders of the venous circulation.

The sixth decimal is the best single attenuation.

CARBOLIC ACID

This acid is not only an irritant poison to the tissues, but seems to deprive the protoplasmic elements of the power of regeneration of tissue in the affected part. It exerts a paralyzing effect on the nerve centres, permitting a prolonged dilatation of the blood-vessels, especially of the head and face. Hence the type of cutaneous disease to which it is adapted is attended with great redness, a marked tendency to persist, to extend or to destroy tissue, even when under treatment. The *sensations* produced in the cutaneous sphere are smarting, burning (heat), itching, biting, pricking or crawling, and if the congestion become passive in nature, there may be sensations of coldness (or cool to touch—rosacea) and rarely of horripilation. Prostration may be a general symptom. *Aggravations* occur at night, from touch and rubbing. Scratching gives some *relief*, especially if the lesions bleed, as they are apt to do if excoriated.

Eczema of the face, neck or scalp; papular; papulo-vesicular or papulopustular, but always presenting a marked *redness* of the surface, which extends beyond the other lesions, if attended with fullness in the head, headache or constriction of the forehead and temples (indicating fullness of the blood-

vessels) may be greatly benefited by the action of this drug. Eczema of the *dorsal surface* of the *hands*, fingers and between the fingers, with some of the lesions above named, sensations and modalities like those of carbolic acid, quickly respond to the curative action of this remedy. In such cases the redness may be bright, in others dark, as the vascular dilatation is arterial or venous.

Like the preceding drug, carbolic acid may be occasionally useful in *psoriasis*. It may be indicated when the lesions are intensely hyperæmic, slightly scaly, bleed easily from rubbing or other artificial irritation. While the correspondence, from lack of sensations in most cases of *psoriasis*, cannot be complete, its curative action has been verified in several cases of the disease.

Theoretically, carbolic acid ought to be beneficial in that rare affection described as *dermatitis repens*.

Rosacea.—In early stage when redness (with heat) is intense and prolonged, but alternates with pallor; of the dissipated who are subject to periodic gastric disorders. In later stages when color is dark red or bluish, sharply in contrast with pale skin, cool to touch; pustules on middle third of nose; color greatly increased by friction, which causes a burning pain.

Dermatitis herpetiformis, Impetigo herpetiformis, Herpes gestationis.—These rare affections exhibit symptoms which correspond in some important particulars with the pathogenesis of *carbolic acid*; vesicles all over the body; itching and burning sensations; great tendency to persist, extend and sometimes become pustular; evident absence of regenerative power of affected parts in some cases.

Epithelioma.—Accompanied with dilated or numerous capillaries, considerable redness, burning pains and a tendency to bleed freely on slight irritation of the affected surface. Especially when originating from hyperæmic lesions with bloody contents or bleeding easily, particularly if situated on the face or about the orifices of the body.

Carbolic acid may be given for its remedial effects on the skin in the third to sixth decimal attenuation.

CAUSTICUM

Either weakness or anæmia is a fundamental characteristic of this drug, at least for all chronic conditions. The weakness may be largely motor and local with a distinct affinity for the organs of circulation, the throat, bladder and face, but the dislike and apparent inability to make effort is often general in nature. It may correspond somewhat to the rheumatic or gouty diathesis, and a sour sweat is symptomatic. It produces its effects on the skin through the vaso-motor nerves, causing circumscribed congestion, inflammation and less often papillary hypertrophy. In the skin itself there may be found any of the many forms of pruritus from the simple tickling to the most aggravating burrowing sensation. Symptoms are *worse* at night, from warmth of bed, are temporarily *relieved* by scratching and by lying down. Sometimes at night a type of restlessness appears which is not relieved by motion.

The phases of **eczema** suggesting causticum are not often seen, and then there must be some non-cutaneous indications also to justify the selection of this drug. It is probable that similar changes in the quality and quantity of the secretions of the skin, as found under this drug, are often exciting causes of eczematous inflammation, because the folds of the skin (imprisoning sweat), between the thighs, back of the ears, under the breasts and at the vertex under the hair are favorite sites indicating causticum. A similar relation holds for eczema of the upper lip from nasal discharges, and about the nipple from disturbance of secretion there. Location, however, is of less importance, except as related to cause, than the sensations, their variations and the form of lesion. The latter is usually vesicular—a moist, weeping surface becoming more or less covered with crusts. Papular and papulo-pustular eczema wherever located may occasionally show indications for causticum. *Aggravations* from open air or on exposure of the skin to air are suggestive features.

Rosacea.—Redness and pimples chiefly on tip and wings of nose and between eyes; associated with acid dyspepsia, sour eructations long after eating, or with urinary disorders indicating causticum; drawing or tense *sensations*. In late stage when wart-like enlargements appear on nose. In gouty or rheumatic subjects.

Syphilis.—Secondary hyperæmic generalized eruptions, attended with paralytic weakness, loss of hair, sensitiveness or soreness of the buccal membrane. Symptoms *worse* at night.

Verruca.—Reddish, warty growths on finger tips, about nails, nose or eyebrows. Rheumatic subjects with sour sweat and restlessness at night.

Causticum acts best on the skin in the low attenuations, first to sixth decimal.

CHELIDONIUM

Through its action on the liver and other organs of secretion and excretion, chelidonium may induce a retention diathesis (toxæmia), derange the functions of the skin and give rise to inflammatory papules, vesicles, pustules, etc. Jaundice may or may not be present, but the itching sensation in small areas is like that observed with jaundice staining. The *sensory* symptoms in the skin which may vary widely from a typical itching, are almost always *worse* morning and afternoon, from sitting (in dependent parts), continued pressure, and are *better* from rising, after eating, from driving and other passive forms of motion. The hepatic and gastro-intestinal symptoms of this drug are always to be kept in mind in any case of eruptive disease suggesting its use. Lassitude and drowsiness during the day are general indications.

Seborrhœic dermatitis which simulates somewhat lupus erythematosus, situated on the face, scrotum or about the anus, occurring in the sallow complexioned or phlegmatic, attended with corrosive burning, biting, stinging, itching, or soreness, may require chelidonium; especially adapted for chronic cases which tend to assume a malignant type.

Acne.—When some of the general symptoms of chelidonium are present, and the eruption occurs on the face in small groups of very sensitive papulo-pustules.

The **eczema** calling for this remedy is usually situated on the dependent parts of the body, such as the scrotum and legs, where the blood in over-charged vessels circulates less rapidly. The form of lesions is often vesicular, attended with considerable heat and swelling of the skin, and if not arrested is apt to pass into the red, angry appearance of the surface, described as *eczema rubrum*. Sometimes a papulo-pustular eczema on the face, trunk or thighs presents a symptomatic likeness to chelidonium.

Carcinoma cutis, Epithelioma, Paget's disease.—Yellowish-gray complexion. Painful lesions in the skin with burning sensations, *worse* morning and afternoon, *better* at night. Spreading ulcers with offensive discharge. Diurnal lassitude and sleepiness. Hepatic and gastric symptoms.

Chelidonium should be given in a low attenuation for most types of skin disease. Externally one part to four to ten of pure glycerine is often useful.

CHININUM SULPHURICUM

Quinine in sufficient doses induces an auto-toxæmia by its inhibitory action on protoplasmic processes and by retarding the elimination of waste (poisonous) products from the system. Reflexly or otherwise, the skin of susceptible persons may become congested or inflamed, and characterized by the rapid appearance of more or less extensive erythema followed by desquamation or papular, nodular and sometimes vesicular eruptions. Very similar results may follow when other factors cause effete or other poisons to be retained in the system. Some *general* indications for quinine are apprehensiveness of impending danger, whirl-like vertigo, sensitiveness of the upper part of the spine to pressure, oppression of the chest and a tendency to periodicity in the onset or aggravation of symptoms. The *location* of cutaneous eruptions may be general, though a preference is shown for the face, extremities, chest, neck and genitals. *Sensations* of itching, pricking, chilly creeping or crawling and tension may be felt; *aggravations* are apt to occur at night, from pressure or friction and from exercise; some *relief* is felt from scratching and from change of position.

Erythema scarlatiniforme.—Bright red efflorescence, beginning on face, neck, chest or extremities, spreading to other parts and preceded by or accompanied with fever; with itching, pricking or creeping sensations, *worse* from touch, exercise and at night; with puffiness of eyelids, face or legs; especially in cases which tend to recur or persist and are always followed with abundant desquamation.

Erythema multiforme.—Flat, lumpy, itching papules in patches on back of hands; vivid redness with swelling and itching on face and limbs; lesions sensitive to touch, *worse* at night from exercise; especially when lesions tend to vesiculate or become purpuric.

Urticaria.—Onset attended with swelling or oedema of the face; rapid outbreak and general distribution of eruption, *worse* on extremities, neck and face; in malarial cases subject to periodic attacks or attacks from some slight indiscretion in diet. *Sensation* of itching, pricking, burning, tingling, *worse* from pressure, friction, exercise, *better* temporarily from change of position and scratching.

Purpura, P. hemorrhagica.—Sudden attacks; lesions on extremities or trunk, variable in size and painful to pressure; sensitiveness of dorsal vertebræ to pressure; apprehensiveness of patient regarding attack; oppressiveness of chest; bloody diarrhoea, bleeding from gums or other parts of the mucous membrane.

This remedy should be administered in a medium attenuation, third or fourth decimal.

CHLORALUM

Besides the well-known hypnotic effect of chloral, it depresses respiration and circulation, and in susceptible subjects causes paralysis of the vaso-motor centres, consequent circumscribed or diffuse redness of the skin, less commonly papules, wheals, and rarely vesicular or hemorrhagic lesions. The favorite locations for chloral eruptions are the face, neck, chest, extensor surface of the knees, wrist, elbows and ankles. *Sensations* of burning, itching, fullness and throbbing are most common. *Aggravations* of the eruption after hot drinks, stimulants, and after eating are characteristic; palpitation may be felt at the same time and sensations are usually *worse* at night.

Erythema multiforme.—Bright or dusky redness of the face, varying in intensity, sometimes associated with twitching of facial muscles; dusky red patches on chest and extensor surface of extremities; fluxionary redness always *worse* from hot or stimulating drinks and after food; with exudative papules which coalesce to form wheal-like patches; with burning or itching sensations, *worse* at night; variegated red patches, afterward yellowish with lighter patches between.

Urticaria.—Rare cases following free use of hot drinks or stimulants; smaller lesions tend to coalesce when associated with considerable erythema; burning, itching and throbbing sensations.

Purpura.—Associated at the onset with an erythematous or urticarial eruption, which subsides, leaving characteristic purpuric lesions widely distributed; following intoxication or prolonged and free use of stimulants; sensations of fullness and throbbing, increased by hot drinks.

The third decimal attenuation is suitable strength for most cases to which it is adapted.

CICUTA VIROSA

Cowbane is a cerebro-spinal irritant, causing muscular twitching, convulsions and derangements of innervation and circulation. The skin may suffer reflexly from intense circumscribed hyperæmia, characterized by the appearance of dark red elevated lesions on hands and face, which turn darker or occasionally become superficially inflamed and result in vesicular or pustular formations. *Sensations* of burning, itching, drawing, stinging or crawling are common, and are *worse* from touch and sitting; *better* from pressure and scratching.

Erythema multiforme.—Occurring in neurotic subjects with muscular twitchings; dark red elevations on face with burning pain on touch, cluster of red, smooth spots on back of hands, lessened by pressure, later becoming darker; especially when lesions tend to coalesce, and some to become vesicular; with itching, drawing or crawling sensations.

Impetigo, I. contagiosa.—Pea-sized elevated lesions on face and hands, rapidly become sero-purulent and form honey-colored crusts. Burning or itching *sensations* on touch, *relieved* by scratching contiguous skin. Especially in neurotic children and when lesions tend to coalesce, multiply or extend.

The third decimal is a suitable attenuation for most cases of cutaneous disease.

CISTUS

This drug appears to act on glandular tissue and the peripheral nerve centres, causing irritation or infiltration of the former and sensory and vaso-motor disorders of the cutaneous membranes. The macular, papular and vesicular *lesions* occur along the distribution of peripheral nerves, especially of the right side of face and trunk, attended with *sensations* of soreness, burning, neuralgic pains, and sometimes with dyspnoea, *worse* on lying down and *better* from motion. Extreme sensitiveness to cold is an important general indication for this drug.

Herpes facialis.—Worse on right side; in scrofulous or rheumatic subjects extremely sensitive to cold.

Herpes zoster.—Right side of face or intercostal region, with sore burning, neuralgic or rheumatic pains which continue after appearance of eruption or extend to non-eruptive regions, with attacks of difficult breathing. *worse* on lying down; great sensitiveness to cold, especially in rheumatic or scrofulous persons.

Cistus should be administered in a low attenuation, first or second decimal.

CLEMATIS

The pains of this drug simulate those of rheumatism, its action on the lymphatics that of some fresh infection, while its tendency to produce herpetic lesions on the skin recalls the "herpetic diathesis" of old writers. Vesicles may be preceded by erythema or papules, and, again, may terminate in pustules or crusts, but the type of eruption is more distinctly herpetic than otherwise. The favorite *location* is at the occiput near the hair line; next in order are the anterior parts of the scalp, the face, and rarely the eruption may be generalized over the trunk and extremities. The *sensations* often vary from a typical itching to a pulse-like stinging, crawling, quick sticking or tickling. The tendency to be *worse* on the hairy parts of the skin, from cold bathing, from warmth of bed and in chronic eruptions, a monthly aggravation (said to be coincident with the new moon) is quite marked.

The forms of **eczema** to which clematis is adapted are briefly indicated by the foregoing. A proclivity to rheumatic or lymphatic affections from ineffective elimination, or from suppression of discharges (catarrhal, gonorrhœal, etc.), should favor the selection of this remedy.

Herpes.—Recurrent on face or genitals, eruption on or extends to hairy parts; pruritic sensation *worse* from warmth of bed at night; in rheumatic subjects, herpes progenitalis associated with genito-urinary affections, especially from suppressed gonorrhœa or other morbid discharge.

Herpes gestationis, Impetigo herpetiformis, Dermatitis herpetiformis.—Clematis may be indicated in these affections when occurring in persons of a rheumatic constitution with monthly recurrences or aggravations, a tendency to invade the hairy parts; attended with pruritic sensations, *worse* from warmth of bed at night, and especially if the onset was preceded by the suppression of some discharge or evidences of a fresh infection.

Clematis may be used low or comparatively high, according to the sensitiveness of the patient. The second decimal is more often employed.

COCA

This drug produces finally on the system a sort of premature aging resembling somewhat the nervous debility which follows from mental over-activity, accompanied with insomnia, emaciation, dyspepsia and nervous disturbances. The skin generally may have a tense feeling with a lessening of color and secretions; while on unusual locations erythematous, papular, tubercular or wheal-like lesions may occur. Certain *relief* of symptoms is experienced from taking wine, from being in the open air and from riding.

In **anidrosis** and **asteatosis** partial in character when the above or similar conditions are found, they may be relieved by the use of coca.

Erythema multiforme.—Circumscribed erythema, papules, tubercles or wheals in unusual locations; in the debilitated or prematurely old; when symptoms are *better* from wine, open air and while riding.

Urticaria, U. pigmentosa, Purpura.—With lesions in unusual locations; occurring in the neurasthenic or prematurely old; sensations and symptoms generally *relieved* by stimulants, open air and from riding.

Coca should be employed in a low attenuation, first or second decimal, and sometimes in the tincture.

COCCULUS

This drug, through a toxic effect on the cerebro-spinal axis, acts especially on the motor nerves producing spasms, local disturbances of digestion, circulation, vertigo and various nervous phenomena.

On the skin its action is almost purely reflex on the peripheral blood-vessels, inducing hyperæmic, macular, papular and pustular *lesions*, especially of or about the glandular structures. The favorite *locations* are the face, neck, shoulders, chest and inner thighs. *Sensations* in the skin are not important; sticking, burning, itching and crawling are most common. *Aggravation* of most symptoms from riding, all exertion, eating, drinking, after smoking, etc., are significant, but the special (clinical) *modality* of the skin is the intolerance of exposure to either cold or warm, open air, and in a less degree to artificial extremes of temperature.

Hyperidrosis of hands.—Hysterical subjects, *worse* mornings, from cold or heat, and *relieved* by passive friction of the parts.

Acne.—Much redness of the area of skin involved, especially of the face, which becomes *worse* from exposure to either heat or cold, and particularly if other neurotic symptoms of cocculus are found.

Onychia.—Hot, burning sensations about the nail with other symptoms of cocculus.

Urticaria.—Hard lesions. burning and itching as from nettles, *worse* on exposure of skin to air in undressing, etc., from gastro-intestinal irritation or absorption of toxins of indigestion.

Rosacea.—Associated with flatulent dyspepsia, mental dullness, menstrual disorders or sick headaches; symptoms *worse* from riding, eating, cold drinks and surface conditions always from exposure to either heat or cold, with spinal irritation and hyperæsthesia.

This drug may be given in the third decimal, not higher, and in some cases the first or second attenuation is preferable.

COLCHICUM

In general, it is interesting to note that this drug produces symptoms of acute attacks of rheumatism and gout. Violent gastro-enteritis, profound depression of the heart and of the temperature are also noted from the use of physiological doses. *Colchicine*, the alkaloid of colchicum, has been found to give greater satisfaction in the treatment of cutaneous disorders than colchicum and should always be prescribed on the patient's general condition rather than on surface indications. The *gouty* and *rheumatic* diatheses are the most important item to consider. The *lesions* are not typical; the same may be said of *location*. *Sensations* include sticking, crawling, itching and burning, often *aggravated* by scratching, with the result that the irritation seems to be driven to another part of the skin.

Seborrhoeic dermatitis.—Gouty or rheumatic diatheses in middle aged or old people who exercise very little and whose glandular system is inactive.

Acne simplex.—Occasional cases associated with an excess of uric acid, indolent lesions with a tendency to become indurated.

Acne indurata.—Pruritus may be a feature caused by excess of urea and uric acid.

Erythema multiforme.—A frequent cause of this disease is the retention of the waste products of metabolism, and the rheumatic tendency may lead to the use of colchicum.

Eczema.—Squamous, fissured and verrucose types, chronic and indolent in their course, presenting the typical *aggravation* from scratching.

Psoriasis.—Complicated by seborrhoeic dermatitis in rheumatic and gouty subjects. The lesions are of the indolent, inveterate, scaly type. The complicating condition causes marked subjective sensations, *worse* from scratching.

Dermatitis exfoliativa.—Associated with general conditions.

Urticaria.—Arising during the course of a rheumatic or gouty attack with the tendency of the subjective sensations to appear at different places from those originally scratched.

Pruritus.—Generalized or localized, associated with uric acid and its causal factors.

Herpes zoster.—Associated with general conditions.

Rosacea.—Indolent papular eruption with burning, *worse* from scratching. Uric acid diathesis.

Pemphigus.—Gastro-enteritis of the severe type peculiar to colchicum. Great prostration and weakness.

Colchicum may be used in the first to third decimal, while colchicine is usually prescribed in the second to sixth decimal when used for cutaneous conditions.

COMOCLADIA

The action of this drug on the skin resembles rhus tox. in producing erythema, swelling and papular eruptions; it lacks the power of the latter in causing vesiculation, but exceeds it in provoking pigmentation or suppuration, the latter particularly on the legs. It causes *sensations* of heat, burning, itching, stinging, crawling and tension, which may *shift* rapidly from one spot to another. *Aggravations* may occur from touch, warmth, rest, and in the morning and evening. *Relief* may follow from motion, rubbing, scratching and in the open air. The favorite *location* for diffused redness and swelling is the face; for circumscribed patches, the trunk and lower extremities; and for suppurating lesions, the legs.

Erythema multiforme.—Redness and swelling of the skin followed by unusual pigmentation; of the face with recurring puffiness about the eyes; general, or on sides of trunk and outer part of extremities; with burning, itching, stinging or crawling, which shift in intensity from one part to another, generally *worse* from touch, warmth and rest, and *better* from motion, scratching and rubbing; fugacious erythema—from above downwards.

Comocladia may be indicated in **acute erythematous eczema** of the face with marked swelling of the skin, partly closing the eyes; or for **chronic erythematous eczema** of the face, characterized by a frequently recurring puffiness or swelling about the eyes (crotalus).

It is also adapted to a **papular eczema** of the trunk and extremities, which remains papular—not becoming vesicular or pustular.

Cures have been observed from this drug in attenuations from the first to the thirtieth.

CONIUM

Acting chiefly on the peripheral nerves (motor and trophic), conium deranges the vegetative functions of the body, and renders the individual unfit for physical or mental effort. The changes in nutrition cause the glands to enlarge as in scrofula; the complexion to become pale, yellow or sallow, as in old age. Circumscribed areas of the skin may change in color, the hair falls out, and papular, vesicular, pustular or even gangrenous spots appear. The most common *sensations* in the skin are burning and itching, but almost any abnormal sensation may be felt. *Aggravations* occur from scratching, washing, perspiration, sitting and at night. *Relief* sometimes follows from rubbing and from moving about. The favorite *locations* of conium eruptions are the genital regions, the face and the hands (except macules may be generally distributed over the trunk and extremities). These also are the regions where sweating is apt to be most abundant, particularly with sleep at night.

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Hyperidrosis or chromidrosis.—Sweating about the perineum, genitals or

axilla at night on falling asleep, sometimes offensive, in the neurotic or cachectic individuals, especially old people or the prematurely aged.

Eczema of the face, hands and genitals with papulo-vesicular lesions, occurring in scrofulous or neurotic individuals and presenting the characteristics of conium. have been cured by its use.

Pruritus.—Erratic itching of any part; after active exercise or perspiration, *worse* from washing, at night, *better* from moving about and from rubbing.

Urticaria papulosa.—After violent bodily exercise, with evanescent stinging, burning or itching in a single spot at a time; associated with hepatic disturbance, yellowish skin, etc.; occurring in old people or in scrofulous types and tendency to chronicity.

Trophic ulcers.—In spontaneous forms of ulceration with or without gangrenous tendencies, conium may be indicated by its action on the trophic nerves and other features of its pathogenesis.

Syphilis.—Primary stage, indurated lesion, followed soon by glandular swellings. Tingling, pricking or stitching sensations, *worse* at night, during rest and on lying down. *better* from motion. Especially in the prematurely old or scrofulous subjects with pale yellowish complexion.

Paget's disease.—Old women of tight, rigid fibre or of scrofulous type. Inflamed, indurated patch on areola or nipple, with burning, itching or tingling sensations, *worse* at night, sitting; *better* from walking about and gentle rubbing.

Conium may be administered in the sixth decimal or lower attenuation. The more marked the changes in the texture of the skin the lower the attenuation should be.

COPAIVA

This drug acts prominently on the skin and on the mucous membrane of the urinary tract, preceded or attended at the onset with febrile symptoms and sometimes hysterical disturbances. On the skin, circumscribed lenticular patches of redness (deepest at the centre) and papular, nodular, bullous, pustular and sometimes hemorrhagic lesions have been observed. The location of eruptions may be general, though the joints, back of hands, feet, face, chest, legs and arms are sites of preference. Sensations of itching, pricking, tickling, biting, burning or crawling are commonly felt, and are usually *worse* morning and evening, and from touch.

Erythema neonatorum.—Redness of the skin with or without febrile disturbance, the color fading to yellow and disappearing without desquamation; with minute hemorrhagic points.

Erythema multiforme.—Uneasiness, chilliness, then fever followed by red lenticular eruption, with itching and pricking, color disappears temporarily on pressure, lastly mottled appearance of surface; round spots with

uneven edges and normal skin between; on back of hands, wrists, feet, ankles or knees; smooth papular eruption, with points of deeper color, sometimes becoming confluent; especially when associated with characteristic urinary or gastric disorders, and symptoms in general are *worse* morning and night.

Urticaria.—Beginning about the articulation, with small and large lesions and considerable redness, attended with fever and restlessness; associated with scanty urine loaded with sediment; dryness and heat of skin with violent biting, itching sensations, *worse* from touch.

Purpura.—Onset attended with febrile symptoms, restlessness, bloody urine, bruised or rheumatic pains and pruritic sensations; pin-head-sized hemorrhagic lesions surrounded with a hyperæmic zone.

Pemphigus foliaceus.—“Modified pemphigus over whole body, beginning at flexure of joints, the bullæ aborted where the skin was thin, the discharge excessive, offensive, viscid, then general desquamations.” Bullous eruptions on an erythematous surface, with non-cutaneous symptoms indicating copaiva.

Copaiva acts well in medium attenuations, third to sixth decimal.

CORNUS CIRCINATA

Vesicular eruptions associated with chronic affections of the liver, spleen, intestines, malarial cachexia, chronic diarrhœa or aphthous stomatitis may be cured with this drug.

Vesicular eczema of the face, in infants suffering with nursing sore mouth, or from diarrhœa, and attended with only moderate itching of the parts, has yielded to this remedy.

Herpes facialis.—Of infants or young children associated with the above-named or similar conditions.

The sixth decimal is the best single attenuation.

CROTALUS HORRIDUS

This venomous poison introduced into the human body acts quickly and profoundly upon the nervous system. If the dose is not rapidly fatal it soon produces decomposition of the blood and a consequent tendency to local hemorrhages, inflammations and derangements of nutrition similar to those observed in asthenic forms of disease. As a remedy it probably finds most use in the so-called zymotic maladies (yellow fever, scarlet fever, etc.), which either overwhelm the nervous system by the intensity of their onset or pursue a malignant course; but there may be phases in the course of many cutaneous affections, due to alterations in the blood or to an invasion of the tissues by poisons generated without or within the body, which indicate its employment.

Of the *lesions* produced, color changes of the skin may be pigmentary with

or without hemorrhages, a mixed or a venous hyperæmia with or without inflammation. If the latter prevail it may result in the formation of vesicles, pustules, tubercles, gangrene or ulcers. *Location* is not characteristic. *Sensation* is more often described as stinging, tension, soreness, sticking or simply painful rather than the more common itching.

Hæmatidrosis.—Bloody sweat either from hereditary tendencies (hæmophilia), acquired blood states or neurotic disorders may be accompanied with some symptoms indicating crotalus. It is especially adapted to cases of this nature due to some septic poison or peculiar nervous disturbance of the circulation, which sometimes occurs in women at puberty, the menopause, or with dysmenorrhœa. Petechiæ or other signs of hemorrhage are usually present also.

Acne.—Papules and pustules with purplish areolæ and other signs of a sluggish or weak circulation, particularly for amenorrhœic, dysmenorrhœic or hysterical young women.

Erythema caloricum (chilblains).—On hands and feet, with swelling, stinging, sticking, tension or soreness; recurring each year in the same place; in the weak or cachectic, with dark color of affected skin threatening gangrene.

Erythema multiforme.—In persons of weak circulation; local swellings attended with fever, followed by green, yellow and bluish spots after the swelling ceased; diffused redness of sides of body and on lower extremities with soreness, leaving the surface mottled and disappearing from above downwards.

Vaccination eruptions.—Occurring in the weak or anæmic within three days after inoculation, eruption resembling erythema multiforme; after development of the virus, small purpuric spots, with faintness, irregular pulse and dizziness; from subsequent infection through the wound—erysipelas, cellulitis, furunculosis or gangrene.

The type of **eczema** indicating crotalus is not common. It has cured *erythematous eczema* of the face, occurring in the old or cachectic, characterized by much swelling and tension of the face, especially about the eyes, and restlessness at night. Periodicity in attacks or aggravations of the swelling has been found a good keynote. Rarely crotalus is indicated in *vesicular eczema* of the arms, attended with considerable swelling and discoloration of the skin.

The rare affection, **dermatitis gangrenous infantum**, has been described with symptoms (hemorrhagic vesicles, bullæ, gangrenous crusts, etc.), which point to crotalus as a remedy.

Purpura hemorrhagica.—Bleeding from any or all mucous outlets with petechial spots in the skin, *worse* on lower extremities with irregular and weak heart action, faintness and vertigo; especially valuable in cases consecutive to asthenic types of disease or due to septic infection.

Insect bites, Furuncle, Carbuncle, Anthrax, Dissection wounds.—Deep seated, bluish, blackish, gangrenous lesions, with bright or dark red areola; scant, dark, bloody or ill-conditioned discharges; stinging, throbbing, tense sore *sensations*, sometimes *relieved* by pressure and dependent position; at-

tended with prostration or signs of septicæmia. Especially valuable for bites of insects with erysipelas-like redness and swelling, for boils and carbuncles following vaccination or septic inflammation, and for dissection wounds spreading to the subcutaneous tissue and lymphatics.

Erysipelas.—Widely extending redness and swelling of the skin from a poisoned wound or sore; secondary blisters filled with a darkish fluid; attended with weakness, faintness, vertigo and tardy resolution of the affected parts.

Crotalus, unlike *lachesis*, probably acts best in medium attenuations, third to sixth decimal.

CROTON TIGLIUM

Croton oil applied to the mucous membrane of the skin excites a catarrhal inflammation. Given internally it seems to have an elective affinity for the skin of the face and external genitals, producing a dark red erythema, vesicles and pustules, accompanied with corrosive itching, smarting, burning, tickling and other pruritic sensations. These are *worse* night and morning, from waking, *touch*, washing and exposure to the air.

Croton tig. is adapted to the treatment of **acute or subacute eczema** of the face—erythematous or vesicular; or of the external genitals—erythematous, vesicular or pustular, when the sensations and modalities correspond.

Herpes.—Of face or genitals accompanied with corrosive itching or burning, greatly aggravated by friction, thus preventing scratching, sometimes *relieved* by gentle touch or pressure, with offensive, yellow, plastic exudation, which causes intense burning by contact, especially valuable for herpetic eruption about the eyes involving the conjunctiva.

Herpes zoster.—Of muscular parts, evolution of eruption attended with intense burning, smarting, soreness, etc., with extreme sensitiveness to contact and friction.

Dermatitis herpetiformis, Impetigo herpetiformis, Herpes gestationis.—Croton tig. may be indicated in these maladies when the course of the eruption is marked by severe sensations; the exudation becomes yellow, offensive or ex-coriating and the lesions predominate on or about the genitals or over the more muscular regions of the body.

The sixth decimal is a serviceable attenuation for most cases.

CUNDURANGO

While satisfactory knowledge regarding the action of this drug on the human tissues is lacking, it appears probable that it excites activity in abnormal tissue or formations and leads to local changes somewhat like effects due to specific or malignant types of disease. On the skin congenital formations may be stimulated, inflamed or increased, macules, papules and pustules appear

and at or near the mucous outlets fissures develop. It may therefore prove beneficial or curative in certain unusual aspects of disease.

Syphilis.—May supplement other remedies when fissures form about the muco-cutaneous outlets.

Nævus pigmentosus, N. vasculosus.—Increase in color or size of congenital growths, especially when associated with irritations of the mucous membranes and tendency for cracks to form at corners of the mouth.

Epithelioma.—Of lips or anus, characterized by painful or repeated occurrence of fissures or fissure-like ulcerations. Also for epithelial growths originating apparently from irritation or congestion of a pigmentary mole, with early tendency to warty growth or cracking.

Carcinoma cutis.—Ulcerative stage when fissures form.

Verruga.—Cundurango may be adapted to the treatment of some cases of this tropical disease.

Cundurango should be given in a low dilution or tincture for its remedial effect on the skin.

CUPRUM ARSENICOSUM

This salt exerts its greatest influence upon the gastro-intestinal tract, causing colic, cramps, vomiting, purging and nausea. Its action upon the skin is not well understood, although itching of the arms and legs, pustules, cedema and furuncles have been reported.

Eczema.—When a scaly, chronic patch of the palm of the hand is present, this remedy will often benefit.

Syphilis.—A slowly spreading squamous syphilide of the palm, resembling psoriasis, has responded to this salt.

Cuprum arsenicosum should be given in the sixth decimal for most cutaneous cases, although it may be necessary to go as low as the third decimal.

CURARE

Arrow poison, according to Claude Bernard, paralyzes the musculo-motor and vaso-motor nerves. It appears to act primarily upon the peripheral nerves, and has an affinity for the feet and ankles.

Thus it shows a pathological relation to certain conditions included under **keratosis palmaris et plantaris**. The sensations of soreness, tenderness, numbness credited to this drug have also been noted in the disease. *Aggravation* of conditions following washing are also common to both, though not limited to the same regions.

This remedy does its best work in the attenuations from the second to the sixth decimal.

CYCLAMEN

This drug acts chiefly on the gastro-intestinal and the genito-urinary tracts, inducing secondary anæmia and a variety of reflexes. Thus the sensory nerves of the skin become paræsthetic, and on the face circumscribed erythematous, papular and pustular *lesions* appear. A certain though temporary relief from pruritic sensations is obtained from rubbing or scratching.

Acne simplex or indurata.—Acne in young women, due to menstrual disorders, who are subject to frequent depression, headache, vertigo, nausea; or in older women with similar symptoms due to dyspepsia. Some symptoms are *aggravated* by motion, going out of doors, on waking, eating fat food, and are *relieved* by quiet indoors and on appearance of the menses.

Pruritus.—Associated with menstrual or gastro-intestinal disorders; itching changing from one part to another, *worse* from increase of indigestion, menstrual disturbance, at night in bed, *relieved* by scratching the part until sore and on appearance of menses.

This drug may be administered in the sixth decimal first. and then in a lower attenuation if an effect is not obtained.

DIGITALIS

Digitalis acts through the vaso-motor system and produces well-known effects on the heart and arteries, secondary anæmia of some parts and hyperæmia of others. From the latter conditions arise a variety of disorders. The skin becomes pale and grayish in hue and cool or cold to touch; the fatty secretions are more consistent, retained in the follicles, and sometimes decompose or are invaded with pus cocci.

Comedo.—In young persons with pale complexion, slow pulse, symptoms of spinal anæmia, nervous depression or spermatorrhœa. The comedones may suppurate rapidly, but do not lead to much redness.

Acne simplex.—Papules and pustules always beginning with comedo, apparently from decomposition of the latter, and with similar symptoms.

Digitalis should be given in most cases in the second decimal, others may need the first attenuation. No effect on the skin can be expected from high dilutions.

DULCAMARA

The pathogenesis of dulcamara is related to surface affections which are reflex or "critical" in nature, particularly the reflexes excited or aggravated by changes to cold and damp weather; the latter really act to suppress functions of the skin and exposed portions of the mucous membrane, and are usually followed by reactions toward the surface. The effects may appear as erythematous, papular and sometimes vesicular lesions. The attendant sensations may vary widely—tickling, burning, creeping and itching being the most commonly experienced. *Aggravations* from cold and wet weather are always to be associated with this drug, and warmth of room or bed may also increase abnormal sensations, as may also the use of coffee and eating. General *betterment* of eruption in warm weather, however, is notable, as is temporary *relief* of sensations from cold. These contradictions are apparent only, as they are due on the one hand to general and on the other to local influences.

Chromidrosis.—When associated with pruritus or urticaria which may show characteristic aggravations.

Erythema multiforme.—Attacks *without* fever at the beginning of winter or in cold, wet weather; with burning, itching, tickling or creeping sensation. *worse* from coffee, perspiration, warmth of room or bed, temporarily *relieved* by cold applications; with lesions resembling nettle rash, but more persistent in course.

Dulcamara has anti-catarrhal virtues which adapt it to the treatment of eczema of the face, head, hands or arms. It is especially useful in eruptions of these parts at or before the menstrual periods or consecutive to some disorder of other organs or functions. The lesions may be erythematous, papular or more often vesicular, forming dirty or brownish crusts, but they are rarely or never pustular. The attendant sensations may vary widely, tickling, burning, creeping and itching being the most commonly experienced. *Aggravations* of lesions from cold and wet weather are always to be associated with this drug, and warmth of room or bed may also increase abnormal sensations. General *betterment* of eruptions in warm weather, however, is notable, as is temporary relief of sensations from cold. These contradictions are apparent only, as they are due on the one hand to general and on the other to local influences. Pruritic sensations are often made *worse* by coffee, by sweating of the parts, and sometimes after eating.

Pruritus.—Always *worse* in cold, wet weather or beginning of winter, from exposure to cold in undressing, coffee, sometimes *relieved* by cold applications and in warm weather.

Urticaria.—Generalized without fever; after exposure to wet and cold, or in cold weather; with violent itching, *worse* from warmth of room or bed coffee, 12 to 3 A.M., *better*, from cold applications and from persistent scratching.

Herpes, H. zoster, Pemphigus.—When apparently precipitated by expo-

sure to cold and wet and exhibiting some of the above characteristics, dulcamara should be considered in choosing a remedy.

Dulcamara acts best in a low attenuation, second to third decimal.

ERYNGIUM AQUATICUM

“Sweat of urinous odor in evening.”

Uridrosis.—This drug should be studied in those rare cases where in the absence of kidney disease the equilibrium between the urinary and perspiratory functions is disturbed and the sweat has a urinous odor. Sexual weakness, pollutions, or a slight urethral discharge from ordinary causes are good concomitant indications.

The lower attenuations should be employed.

EUPHORBIIUM

Topical applications of this substance cause inflammation of the skin with a marked tendency to vesiculation and later low or destructive forms of inflammation. Many subjective symptoms are credited to it from internal doses.

It may be thought of as a remedy for **erysipelas** of the face attended with high fever and early vesiculation. It has been employed locally with benefit for indolent and gangrenous ulcers, ulcerating carcinoma and **epithelioma** of the skin.

Probably the best effects may be obtained by giving a low attenuation internally and from applications of a crude preparation to the diseased surface.

FAGOPYRUM

Buckwheat acts on the mucous membrane of the respiratory tract, causing fluent coryza and general burning and itching of the membranes. It also influences the peripheral cutaneous nerves, causing varied sensations, especially persistent itching, *aggravated* by scratching, by touch and after retiring. *Amelioration* occurs in the open air. *Lesions* consist of erythema and papules which never become pustules.

Erythema multiforme.—Erythematous type; marked itching and soreness, *better* in the open air.

Eczema.—Erythematopapulæ or simple papular type with typical aggravations and ameliorations.

Fagopyrum may be used in the third decimal with good results.

FLUORICUM ACIDUM

This tissue drug acts on fibrous and fibro-elastic structures, especially on the veins, and seems to create a predisposition to deep-seated rather than superficial disease, whatever the part involved. In skin diseases it is particularly adapted to the cure of affections in a measure due to venous stasis or varicosity. The appendages of the skin are affected by lack of nutrition, hypertrophic formations arise from misdirected nutritive processes, or inflammation begins and persists from lack of vital resistance. Pruritic *sensations* are common, varying to crawling, burning, sticking, fullness, throbbing, etc. *Aggravations* occur at night, on warm days, in dependent parts, from standing and sitting. *Amelioration* occurs temporarily from walking, from rest in the recumbent position. A feeling as if one must walk and "could walk forever" is a good general indication for this drug in diseases attended with pain.

Hyperidrosis.—Sweating of neck, palms or soles, sour and glutinous, *worse* evenings, etc.

Fragilitas crinium.—Hair tangled, distended veins of scalp, or sense of outward pressure, *worse* in occiput or parietal regions, with other symptoms of fluoric acid.

Alopecia prematura.—Hair line recedes unusually from the temples, thin over the parietals; fullness in the head without itching brings a desire to scratch.

Alopecia areata.—Bald patches confined to the left parietal region or worse on left side; feeling of pressure in temples or general fullness in head, *worse* when sitting or standing, etc.

Dermatitis papillaris capillitii.—Fluoric acid is especially indicated in this disease on the tendency of scar tissue to become hypertrophic.

Onychia or paronychia.—Deep-seated as if in bone, with throbbing pain; pain like splinter under the nail, *worse* at night and when held in a dependent position.

Lupus vulgaris, L. erythematosus.—Hypertrophic growth of lupoid or cicatricial tissue therefrom. Deep bluish or purplish hyperæmia and occasional or persistent painful sensations, *worse* from warmth and *better* from rapid motion.

Cicatrix.—Scar formations attended with sensitiveness, unusual sensations, venous hyperæmia or overgrowth. *Aggravations* from warmth and friction, temporary *amelioration* from motion.

Keloid.—Sensitive, painful, purplish, or extending keloidal growths of all kinds; *increase* of hyperæmia and sensations from friction or warmth; *relief* from motion.

Nævus pigmentosus.—All forms of acquired nævi and congenital varieties which continue to increase in size, become changed or sensitive. Especially valuable for the aged or prematurely old.

Neuroma.—Fluoric acid may be indicated in the early stages of this rare affection by tenderness and pain in the growths being *worse* from warmth, *better* from cold and motion.

Adenoma.—Benign adenoma (congenital or acquired) may be modified by fluoric acid when indicated by characteristic general or local symptoms, especially when associated with *nævi* or varicose capillaries.

The sixth decimal of fluoric acid is the best single attenuation.

GRAPHITES

This tissue drug so demoralizes nutrition, that while it diminishes the natural secretions of the skin, menstruation, etc., it induces pathological (catarrhal) secretions, inflammation and exudations in various degrees. It is useful, therefore, for persons who have inherited or acquired a preternatural dryness of the skin, and who suffer from moist eruptions on slight external irritation or injury. Graphites show a greater affinity for the left side, for the epidermis and the glandular structures derived from it, sometimes extending to the subcutaneous tissue. When these tissues have been destroyed and replaced by cicatricial tissue, it is credited with effecting a restoration of the epithelium and great improvement in, or the disappearance of the scar. In functional affections of the glands of the skin it will often prove remedial.

Beyond objective symptoms due to functional disorder, the most characteristic *lesions* produced are papules, *vesicles* and pustules. Concomitant erythema, resultant superficial ulcerations, scaliness of the scalp and offensive crusts at the vertex are exceptional lesions which may suggest this drug. *Sensations* may vary in different cases quite widely; itching, burning, smarting, sticking, crawling and rawness are the most common. These are *aggravated* by warmth, before menstruation, and by scratching. Temporary *relief* is often experienced by washing the parts or by rubbing.

The *location* of conditions or eruptions calling for graphites are usually on those parts most abundantly supplied with glands and subject to effects of warmth or exposed to variations of temperature. Hence, the external genitals, feet, face, scalp, hands and arms are favorite sites; occasionally it is indicated for a generalized eruption papular (follicular) in kind. The general symptoms of this drug may be important in any case. Among them the tendency to emaciation in early life, to obesity in late life, anæmia with redness of the face, tremulousness, drawing or throbbing through the whole body, general weakness, mental despondency and indecision are significant.

Hyperidrosis or bromidrosis of feet.—Sweat of feet, *worse* after noon, evening and between toes; odor worse from walking; when other graphite symptoms correspond.

Acne.—Skin unnaturally dry, sensitive, easily suppurates; in young women inclined to grow stout when menstruation is diminished or delayed, and *worse* at this period.

Canities.—Hair turns gray from anæmia attended with periodic tendency to rush of blood to the head and semi-lateral headache; sad, despondent and inclined to weep.

Folliculitis decalvans (alopecia follicularis).—Some of the varied forms of this disease are likely to present indications for graphites. Then it would probably lessen the formation of scar tissue and the consequent loss of hair.

Onychauxis.—Nails become thick; sensations of contraction or constriction of fingers or toes, crawling in limbs; *worse* from warmth, *better* from bathing or rubbing.

Onychia.—Suppuration at the margins of great toe, pain in nail, pustules on little toe with sticking, exuberant granulations.

Erythema traumaticum, Dermatitis traumatica, D. venenata.—When the sound skin is unusually dry and the local disturbance is excessive in proportion to the degree of injury or contact with a poisonous substance; with tendency of small wounds to suppurate; with burning, smarting, stinging, rawness or itching sensations, *worse* from warmth, pressure, scratching and exercise; *better* from washing or rubbing the affected parts.

Eczema (subacute or chronic) is pathologically and symptomatically related to the pathogenesis of graphites, particularly when vesiculation or a sticky exudation is the predominant condition. Vesicular or sero-purulent eczema of the scalp, ears, face or genitals, not infrequently presents indications for this drug. Swelling of neighboring lymphatic glands is sometimes a feature. It is especially adapted to moist eczema on and about the ears when the skin is not much thickened or heavily crusted, but cracks and bleeds easily. Similar types of the disease on the hands may suggest the drug, but more often on the hands and arms the skin is infiltrated, hard and fissured when graphites is indicated. It acts best when the dorsal surface is involved, but it has cured *squamous eczema* of the palms. Occasionally it is useful in *eczema rubrum* with apparently deep cracks, extending between the thick crusts to the raw surface beneath. In crusted eczema, especially at the vertex, the dried secretions decompose, if permitted to remain, and give rise to an odor, said to resemble decayed herring. All forms of eczema indicating graphites are *worse* from warmth, itch more at night and the exudation is increased by scratching. Persistent dryness of portions of the skin unaffected with eczema is a special indication for this remedy.

Herpes zoster.—Fully developed cases which persist with pruritic sensations, *worse* from warmth, *better* from bathing parts, especially for left-sided zoster with large vesicles; zoster following traumatism.

Scleroderma.—Following exposure to cold and damp or in second stage; skin hard, tense-like cicatricial tissue, inclined to crack; dryness of whole surface, easily excoriated; bruised, stiff, drawing, cramp-like or rheumatic pains, numb or dead sensations; in the obese with great shrinking of the affected parts, with general *aggravations* from warmth at menstrual periods, and *relief* from washing and rubbing parts.

Morphœa, Atrophia maculosa et striata.—When apparently related to ex-

posures to cold and wet; spots, streaks or lines resembling scar tissue; left-aided, with general dryness of the skin.

Tinea circinata, T. tonsurans.—When the unaffected skin is unusually dry, glands enlarged, sensations from the disease are *worse* from warmth and *better* from washing, graphites will often assist in the cure by increasing the normal resistance of the epidermis.

Sycosis, Lupus vulgaris, Scrofuloderma.—Cicatricial stage when scar formations tend to extend or disfigure. Graphites may be indicated by its affinity for glandular tissue and its apparent influence over the growth of new fibrous tissue, especially if other conditions and modalities suggest it as a remedy.

Cicatrix, Keloid, Fibroma.—Scar tissue following traumatism or disease of the skin which tends to hypertrophy or to cause unusual disfigurement may be modified by graphites, especially if other conditions point to this remedy. It should always be considered as a possible remedy in the early stages of keloid or fibroma.

Graphites may be administered in attenuations varying from the sixth to the twelfth decimal. Occasionally the high solutions are valuable in very typical cases.

HELLEBORUS NIGER

This drug in sufficient doses poisons the nerve centres, causes a semi-paralysis of the mental and physical powers, blunts all the senses, suspends or deranges nutrition and function, and deprives the system for a time of its inherent power of reaction. On the skin sudden swellings may appear, the surface desquamate, the hair and nails loosen and fall off without signs of inflammation.

Alopecia generalis.—Hairs of whole body fall out without obvious cause other than atropho-neurotic.

Atrophia unguis.—Nails fall out after painful sensations in fingers or toes, but with little or no signs of inflammation.

Angioneurotic cedema.—Sudden swellings in skin of forehead or other regions associated with mental apathy or stupor and loss of vital reaction.

The third decimal is a suitable attenuation for most cases.

HEPAR SULPHUR (CALCIUM SULPHIDE)

The impure sulphide of lime has a pathogenesis peculiar to itself and much wider than that of the chemically pure sulphide. The latter is to be preferred in only a few conditions, chiefly affecting the follicles of the skin, to be referred to in due order. This drug is ranked with the tissue salts, and has been found to act especially on the glandular system, the skin and connective tissue, caus-

ing a type of inflammation very liable to terminate in suppuration. The *general* disturbance of nutrition is manifested by easily excited perspiration, an extreme sensitiveness to open air, particularly to cold, dry winds and drafts of air; the *local* disturbance of nutrition is manifested by the great soreness and sensitiveness of the parts inflamed, simulating the sensations of lesions on the verge of suppuration. Sharp, pricking local pains often attend the morbid process set up by this drug; in the head this sensation may amount to a pressing or piercing, as though something had been driven into one side of the brain. Besides these characteristic sensations, almost any variety of paræsthesia may be experienced. Itching is often felt but is seldom pronounced. Burning tension (with swelling), throbbing, tickling, etc., are more common.

The most characteristic *lesion* of hepar is the papule, prone to suppurate and often to extend the invasion by apparent infection and the outbreak of other discrete lesions in the surrounding tissues. The morbid process may extend into the deep glandular and subcutaneous tissue, and tubercles or abscess form, as in furuncles or carbuncles. The primary foci of inflammation may begin in a less circumscribed form than the papule, and extend by the progressive involvement of contiguous skin, or by the advent of papules secondary in order of appearance. Whatever the onset, the latter method of extending the area of cutaneous eruptions is a characteristic of hepar. Distinct vesiculation is rarely a feature of this drug, and when observed the contents of the vesicles or blisters soon become purulent (often before rupture), and if the exudation continues it is sero-purulent in nature.

Infiltration of the connective tissue may render the skin inelastic and liable to become fissured, especially on the hands and feet. If ulcers result from suppuration, they are characterized by an abundant offensive discharge, by sensitiveness to touch, by bleeding easily, and by stinging, burning pains.

The *locations* of hepar eruptions are commonly in regions where the glands of the skin are relatively numerous, or where the connective tissue is abundant or loosely attached. Hence the face, scalp, back of the neck, shoulders, flexures of the joints, nates, thighs and the genital region are favorite sites. Location is less important than other indications, and sometimes this is determined by an accidental injury or irritation, the wounded skin, as in the graphites condition, being unable to institute the normal process of repair.

Hyperidrosis.—Sweating on head, on perineum, *worse* at night; sensitiveness of skin to slightest cold and to open air; sweat sometimes sour, sometimes offensive.

Acne in youth to middle age.—Superficial and deep lesions nearly all suppurate, attended with sharp pricking pains, sensitive to touch, bleed easily when rubbed or freely when incised; new papules appear in or about the same area, swelling of neighboring glands, suppuration of all excoriations. (The pure sulphide is to be preferred for most cases indicating this drug, especially if symptoms are few.)

Onychia and paronychia.—Swelling and tension of fingers. Clinically

hepar sulph. has been found very efficient in the cure of onychitis—run-rounds and felons, where there is great sensitiveness and sharp pricking or suppurative pains.

Erythema caloricum, Dermatitis calorica (chilblains, frost bite).—With a tendency of the redness or inflammation to spread to the adjacent skin; great soreness or sensitiveness of the parts and sharp pricking pains, *worse* from touch and cold, and *better* from warmth.

Dermatitis traumatica, D. venenata.—With sharp suppurative pains and tendency to spread from slight causes; great sensitiveness to and *aggravations* from cold air and from touch.

In **eczema** hepar sulphur will be found useful when the exudation is sero-purulent and offensive, the lesions are sensitive to touch and bleed when cleansed or rubbed, especially when they have originated from slight irritations or injury and spread by papules or papulo-pustules appearing near the border. The scalp, ears, face and between the thighs are the most common locations, but occasionally they may be observed in the flexures of the joints or elsewhere on the extremities. It is of special value in "occupation eczema" of the back of the hands and wrists when the parts are very sensitive and tend to suppurate; here the tendency of "slight injuries to suppurate" may find its greatest expression. Another type of eczema sometimes presenting indications for hepar is found on the palms of the hands: the skin becomes thick and inelastic from infiltration into, instead of an exudate on the surface, exfoliation in large or small scales occurs, fissures form, the parts become extremely sore to touch and pressure, and bleed if the partly detached scales are forcibly removed.

Rarely a generalized follicular eczema is seen with discrete papulo-pustular lesions, for which the pure *sulphide of calcium* is better suited than hepar. Otherwise, the indications are the same.

In all forms of eczema requiring this remedy, the sensations (burning, pricking, itching, etc.) are *worse* at night and often on rising in the morning. Great sensitiveness to cold and aggravations therefrom are important indications.

Dermatitis repens from its origin, from injury, and sometimes from its course, may suggest hepar sulphur, especially when there is unusual sensitiveness to cold, to touch, and red macules or papules appear ahead of the advancing border. The writer has verified these indications in one case which had resisted other drugs and methods of treatment.

Urticaria.—Great sensitiveness of the lesions, with sharp pricking pains as if about to suppurate, with sensitiveness to cold air or drafts; in persistent or chronic cases.

Herpes progenitalis.—With sharp pains, great soreness, offensive odor and tendency to spread and simulate superficial ulceration; associated with frequent sweating of the genitals.

Pompholyx.—Burning, tingling and soreness of parts, when lesions coalesce and sharp suppurative *sensations* are felt, especially when new lesions continue to appear near by, become excoriated and bleed easily.

Sycosis, Furuncles, Carbuncle.—Attended with much soreness, sensitiveness to touch, pricking or burning pains, offensive or excoriating discharge. tendency for diseased area to spread by new discrete lesions, general or local *aggravations* from cold and *relief* from warmth.

Actinomycosis with marked suppuration, soreness and sensitiveness to the air. Located on the face or hands.

Syphilis.—Pustular or suppurating lesions of the secondary or tertiary stage, unusually sensitive to touch, with offensive secretions; ulceration of the mucous membranes, thickened border and spongy base. After unsuccessful use of mercury.

Paget's disease.—Early stage, well-defined lesion, copious exudation, attended with soreness, pricking or burning sensations. Local or general sensitiveness to cold and to drafts of air.

When the totality of the symptoms is classical hepar acts promptly in a high attenuation, but for most cases met with in practice the second or third decimal is most effective.

HYDRASTIS

Hydrastis is essentially a catarrhal drug with a distinct affinity for the mucous membranes. On the skin its action is less direct or distinct, and is adapted rather to secondary, unusual or inactive types of disease, due to lowered vitality or constitutional impairment and made apparent by a pale or yellowish skin, functional or organic affections of the glands, cachexia, etc. The early *lesions* are commonly macular, papular or pustular. The first two may be inflammatory in nature or more like the development of new elements in the surface tissues.

The most characteristic *sensations* are unbearable burning, itching and tension; *worse* at night, from change from cold to warm air, and usually *relieved* by scratching or friction. The favorite *locations* are the face, scalp, neck, hands, arms and the genital region.

Clinically, hydrastis has been found adapted especially to inflammatory affections, sluggish or persistent in course, situated on the forehead at the margin of the hair; or to degenerative or malignant diseases attended with its characteristic sensations.

Bromidrosis.—Offensive sweat on the scrotum, *worse* at night with disturbing dreams, etc.

Seborrhœic dermatitis.—*Worse* at the margin of the hair on forehead and temples, persistent and attended with burning, itching or tension, relieved by cleansing or rubbing; also of the *scrotum*, with similar indications and the general conditions pointing to hydrastis.

Eczema at the junction of the hair-line on the forehead, beginning as macules or papules and passing into an indolent but irritated oozing patch or patches, and attended with the constitutional and local indications for

hydrastis, has been cured with this drug. Eczema of the *scrotum* or *pudenda* excited by offensive perspiration occasionally presents indications for hydrastis.

Lupus erythematosus.—Beginning in the sebaceous glands of the face, neck, head or hands. Burning, itching or tension relieved by friction. Pale or yellowish complexion.

Epithelioma (Rodent ulcer), Paget's disease.—Severe burning *sensations*, worse at night and from warmth. Early weakness, prostration, faintness and cachexia. Especially for malignant ulcerations originating at the mucocutaneous outlets or from a seborrhœic patch.

Hydrastis is occasionally indicated in **carcinoma** of the skin by *burning* sensations, deficient nutrition, paleness, etc., foreshadowing early cachexia.

The first to third decimal attenuations are best suited for treatment of cutaneous diseases.

HYCROCOTYLE ASIATICA

The *modus operandi* of the action of this drug on the organism is not well known. While it stimulates the sweat glands and induces functional disorder of these parts, superficial inflammation and disturbances of sensations (*hyperæsthesia*, *anæsthesia*, *paræsthesia*), it is useful therapeutically more often for conditions which might follow from continued stimulation of the superficial layers of the skin, namely. hypertrophy, exfoliation or other changes of the epidermis.

General symptoms indicating this drug are weariness, heaviness, vertigo, unsteadiness, bruised sensations in the muscles, and mental gloominess, one or more causing unfitness for all effort.

Miliaria (*sudamina*) on abdomen from copious sweating, especially when general symptoms indicate hydrocotyle.

Miliaria rubra.—Miliary papules and erythema on neck, back, chest and neck from excessive heat and perspiration with prickling, itching, crawling, constrictive or bruised sensations.

Psoriasis inveterata, especially if the lesions become annular, circinate or gyrate in shape and are located on the trunk as well as on the extremities, may suggest this remedy, even in the absence of other symptoms. The unusual location of this disease on the palms or soles with greatly increased thickness and exfoliation of the epidermis may indicate this drug. It has proved useful in psoriasis of the nails. **Keratosis palmaris et plantaris**, or involvement of the soles only, may present objective indications for hydrocotyle, and if the general symptoms correspond it is likely to prove curative. The sensations of numbness or constriction in the parts involved have been found good indications.

Eczema rarely presents indications for this drug. Chronic squamous eczema of long duration, found in circumscribed patches, attended with abundant or persistent desquamation and moderate subjective sensations in

the lesions, is the only type likely to respond to this remedy unless the general symptoms are also very characteristic.

Scleroderma.—Preceded or attended with sweating, pains in joints, contractions in arms and legs, weariness, heaviness and bruised *sensations* in affected parts, with thickening and rough, scaly epidermic patches here and there, or yellowish or brownish pigmentations.

Pruritus vaginæ.—Associated with local perspiration, heat in the vagina or vesical irritation, mental depression and physical weariness.

Elephantiasis.—Recurring erysipelas like redness of the skin, with increasing enlargement, pigmentation, exfoliation, roughness or unevenness of the surface. General weariness, unsteadiness and mental apathy.

Lupus erythematosus, L. vulgaris.—Attended with considerable infiltration or hypertrophy and sensations of numbness or constriction in the parts involved. Sometimes useful in the ulcerating forms of *lupus vulgaris*.

Leprosy.—Yellowish or reddish macular or tubercular lesions, with variable degree of hyperæsthesia or anæsthesia in different portions of affected skin. Ulcerating tubercles, especially about mucous outlets, with itching of affected or other parts of mucous membrane or skin. Mental and physical lassitude.

Lymphangioma, Lymphangiectasis.—When associated with more or less hypertrophy of the lesions and adjacent skin or the seat of recurrent erysipelalous inflammation may be benefited by hydrocotyle, particularly when the general indications for this remedy are present.

Attenuations from the third to the sixth decimal are most often employed for the more pronounced diseases of the skin.

HYOSCYAMUS

This drug exerts a toxic effect on the cerebro-spinal centres, causing sensorial perversions, irregular muscular contraction or relaxation, especially of the blood-vessels, and consequent hyperæmias, with little or no tendency to inflammation, but sometimes ending in gangrene when the skin is involved.

Besides erythematous and gangrenous *lesions* of the skin, associated papular-like swellings, bullæ, and after the gangrenous slough separates, a bloody looking surface resembling ulcers may be seen. The erythema is more or less general but worse on the face, neck and extremities, attended with considerable swelling, sometimes closing the eyes, and also accompanied with redness of the mucous membrane of the mouth and throat. Parts of the affected skin may be dry like parchment, but exfoliation is not a marked feature. *Sensations* of stiffness, prickling, numbness, itching and bursting may be felt, and are usually *worse* from heat, touch, motion, after eating, and *better* from firm pressure, rubbing and from smoking.

Erythema scarlatiniforme.—In neurotic (hypochondriacal, hysterical)

subjects or alcoholics, attended with muscular twitchings, excitement, and desire to strip off the clothing; looking like inflamed skin with swelling, sometimes becoming shiny, purplish and very dry, with various pruritic sensations, *worse* in a warm room, from exercise, touch, and after eating or drinking, and *better* from firm pressure and from smoking (when accustomed to tobacco); with redness of the throat as in scarlatina.

Hysterical gangrene.—General dryness of the skin, diminished sensation and marked mental symptoms; when gangrenous slough leaves bloody and painful ulcers, especially when associated with muscular twitchings and a desire to uncover the body.

This drug needs to be given usually in a low attenuation, second or third decimal.

HYPERICUM

The pathogenesis of this drug is closely related to neurotic conditions, especially of the peripheral nerves. Hence, in the cutaneous sphere it is sometimes a remedy for neurotic affections or for affections of parts richly supplied with nerves, especially if originating from injury. In an etiological sense it is related to arnica, graphites and hepar sulphur. In a general way, it is adapted to cutaneous disorders in which the local subjective sensations are excessive in comparison with the number and extent of the lesions. The latter sometimes appear or disappear rapidly, and seem to be influenced by temporary changes in the density of the skin from alterations in the weather.

The secretions of the skin may be increased or diminished, or papules, wheals and occasionally vesicles form. The favorite *locations* of lesions are the hands, face or over the branches of superficial nerves. The *sensations* attending the onset and course of the eruptions are always pronounced, and may consist of itching, biting, sticking, fuzziness, crawling, tingling, or a sharp neuralgic pain. Symptoms are usually *worse* through the morning, and *better* at night and from pressure.

Hyperidrosis.—Sweating of the scalp, *worse* in the morning after sleep, in damp weather, when preceded by some injury, however slight, heat and bursting pain in the head (vertex).

Alopecia.—Falling of the hair from injury to central or peripheral nerve tissue or from excessive sweating of the scalp, with soreness, fuzziness, creeping or other paræsthetic sensation in the scalp.

Atrophia unguis, onychauxis, spoon or other trophic changes of the nails, when traceable to injury of the nerves of the extremities, may be benefited by hypericum. Indicated by sticking in fingers or toes, swollen, suppurating, biting, sticking, cutting or tearing sensations in fingers or thumbs.

Erythema intertrigo, E. traumaticum, Dermatitis traumatica.—When any of the above sensations are excessively severe and are *worse* mornings and from friction, *better* nights and from uniform pressure; when the effect of

injury extends on the line of peripheral nerves, or rises and falls with the aggravations and ameliorations of sensations.

Eczema of the hands and face, with moderate primary eruption, intense itching, and which, from scratching, may give rise secondarily to bright redness, or to sero-purulent exudation and crusting, particularly if there is a history of previous injury of the part or of other parts, occasionally calls for this drug. In some cases there appears to be an abundant eruption in or under the skin, which does not readily break out but itches persistently; in others there may be only dryness of the skin, violent itching and later eczematous eruptions or exudation. The symptoms are usually *worse* through the morning and from friction, and are *better* at night and from pressure.

Urticaria.—When sensory disturbances are most marked in the morning; eruption *worse* on back of hands and between the fingers.

Herpes zoster.—Vesicles beginning with sore places and forming hard, yellow crusts, attended with severe smarting, sticking and occasional sharp neuralgic pains; crawling or other paræsthetic sensations extending to median line as eruption subsides.

The hypericum has little effect on the skin, above the third decimal attenuation, and most cases require the first. In painful affections local applications of the tincture in equal parts of alcohol and distilled water will often give marked relief.

IRIS VERSICOLOR

This is another drug with distinctly neurotic properties, but, so far as the skin is concerned, the effects produced are chiefly reflex or secondary in order. The pathogenesis indicates that its primary action is on the gastro-intestinal tract and pancreas, while secondary effects may be manifested by hepatic derangements, nervous depression, neuralgic headache (migraine), pustular eruptions of the face, scalp, etc.

The cutaneous lesions may rest on a red base, the inflammation may tend to spread deeply or broadly (in lines), to suppurate slowly and rarely become fungoid about the edges. The favorite *locations* for eruptions are the face, scalp (vertex), hands and wrists, but when the other symptoms of iris are distinct, the region involved is less important and even the form of the lesion need not contra-indicate this remedy. Sensations of soreness, tenderness (to touch), itching, and tension are most common. These are made *worse* by warmth, exercise and pressure.

Pustular **eczema** of the scalp occurring in children, a similar form on the bearded portion of the face of adults, or at any age on the hands and wrists, giving a history of frequent gastro-intestinal and bilious attacks of headaches, or accompanied by such indications for iris, may be speedily cured by this drug.

Generalized **psoriasis**, with irregular lesions, a scaly and irritated surface

with elevated edges, giving a history of the gastro-intestinal or other symptoms of iris, have been cured with this remedy. It is probable that such cases are very rare.

Herpes zoster.—Right-sided; small vesicles on a red base, which broaden into wide lines of eruption, preceded or attended with gastric derangements or other characteristics of the drug.

Dermatitis herpetiformis, Impetigo herpetiformis.—Pin-head-sized vesicles changing into pustules, forming patches which crust in the centre, with local and constitutional disturbances similar to the pathogenesis of iris.

Iris versicolor sometimes acts better in the higher than in the lower attenuations. A good starter is the twelfth decimal, from which a higher or lower may be chosen, according to the effect or lack of action noted.

JABORANDI

This drug stimulates all the physiological secretions, and especially the perspiration, to an extreme degree. It sometimes stimulates the growth of hair, causes flushing of the face with throbbing in the temples, with anxiety, confusion, restlessness, palpitation or faintness.

Hyperidrosis.—Profuse perspiration, with flushing of the face, mental confusion or anxiety, palpitation, etc., at the climacteric period in women; occasionally with similar symptoms in men in middle or later life.

Jaborandi probably needs to be given in low attenuation (second decimal) in all cases.

JUGLANS CINEREA

The butternut, or its active principle, *juglandin*, acting on the vaso-motor and sensory nerves produces erythematous redness of the skin, papules, nodules, and sometimes pustular lesions. These are attended with sensations of burning, pricking, itching, similar in some ways to several eruptive diseases believed to arise from the temporary presence of some toxic element in the system. Sensations are usually worse from getting heated, active exercise, and some relief is usually experienced from scratching.

Erythema scarlatiniforme.—Exanthematous eruption, resembling flush of scarlatina, with chilliness, alternating with flashes of heat; with itching, burning or pricking sensations, worse from getting heated and from active exercise, better or changed in type by scratching.

Erythema nodosum.—Before nodules appear when sharp rheumatic or sprain-like pains are felt in the arms and legs, with chilliness without coldness of the surface, and flashes of heat; with burning, pricking or itching sensations, worse from getting over warm; especially when attended with occipital headache.

An acute or subacute **eczema** may originate in like manner, appearing first as an erythematous or finely papular eruption, to remain such, or from greater local intensity pass into the vesicular or pustular stage. Itching may be felt apart from the eruption here and there; it is *worse* from getting heated and from active exercise, and is relieved in or about the lesions by scratching or changed to burning sensation.

Medium attenuations are employed.

JUGLANS REGIA

While the action of this drug is somewhat like that of *juglans cinerea*, on the skin it seems to have a more distinct affinity for glandular structures. It gives rise to local perspiration, and to vesicular, papular, tubercular and pustular *lesions*. The chief *locations* are the face, hands, neck, shoulders, back, axillæ and chest. *Sensations* are not important—itching, burning or painful soreness may occur.

Hydradenitis suppurativa.—It is indicated by location of eruption in axillæ, on face, neck, etc.; connected with disturbance of coil glands (sweating), absence of much sensory disturbance, and leaving some staining behind.

Comedo.—Clinically found useful for comedones which appear to excite a folliculitis.

Acne.—Papules and pustules on face, shoulders and chest, especially in persons subject to occipital headache or women with too early and blackish menstrual flow.

Juglans regia should be given in the third to sixth decimal.

KALIUM (POTASSIUM) SALTS

Kalium does not occur free in nature, but some of its various salts are widely diffused in the organic and inorganic world. One or more of these salts are found in many vegetables, and in animals they are found more abundantly in those fed on vegetables. The potash salts are essential to animal health and the chloride is a normal constituent of the blood globules, the muscle cells, urine, and other secretions. It is probable that the other potassium salts are largely transformed in the animal system into the chloride.

In a general way it may be said that the effect of these salts on animal tissues is to promote oxidation without causing fever when given in small doses; while in large doses, notwithstanding the elimination is rapid, oxidation is impaired, temperature reduced, the functions deranged, the blood deteriorated, nutrition disturbed or diminished, and an asthenic condition gradually established, from which recovery is slow. Thus remedial doses of the kalium salts are in a general way adapted to the cure of disease when the system seems in-

capable (for the time being) of initiating the process of resolution or repair, especially when chiefly affecting the mucous membranes, the skin, the glandular structures, and the fibrous tissue. The influence of the potash base is sometimes overshadowed by the action of the element combined with it, but its presence is apparent in the pathogenesis of all its compounds.

KALI BICHROMICUM

The chromic acid in this drug largely dominates its action. In small doses this salt increases the secretions, in larger doses it is a tissue irritant causing congestion, disorganization, and sometimes destruction of the parts.

On the skin macules, papules, pustules, and ulcers are the most characteristic *lesions*; tubercles may form and pass into a purulent stage. Suppurating lesions are usually rather deeply situated and sharply cut at the edges. The crusts are often dry and more or less adherent. *Location* is not characteristic, though the face, scalp, or extremities are more commonly involved. Local *sensations* may be complex and consist of various degrees of burning, itching, tearing, etc., or there may be almost a total absence of abnormal sensations. When present they are commonly *worse* from pressure, in the hot weather. in the morning; and are *better* in cold weather and towards night.

Papular or pustular forms of chronic **eczema** are occasionally seen presenting some characteristics of kali bichromicum, such as great persistency, dry, adherent scales or crusts, burning and itching sensations worse in the morning and in hot weather. Secondary eczema from hepatic, kidney, catarrhal or rheumatic affections with indications for this drug have been cured with it as the primary disease also improved.

Psoriasis with lesions more or less covered with firmly *adherent* scales, and which burn or smart after the scales fall off or when removed, occasionally responds to the action of this drug.

Dermatitis gangrenosa infantum is one of the rarer affections characterized by secondary ulcerative or gangrenous inflammation beneath the crusts formed from a primary exudation. Prostration and other indications for kali bichromicum have been noted in some cases.

Tinea barbæ, Impetigo contagiosa, Ecthyma.—Ring-worm of the beard, with involvement of the hair follicles and persistent in course. Also in *impetigo* and *ecthyma* when recovery is slow and the ulcers of the latter are unusually deep, sharply cut and covered with dry, adherent crusts. *Aggravation* of sensations from pressure and from hot weather. *Amelioration* from cool weather. Especially when associated with hepatic, urinary, rheumatic or catarrhal conditions.

Phagedena tropica.—Kali bichromicum should be considered in the treatment of this tropical affection as likely to assist in the cure.

Lupus vulgaris, Ulcerating syphilides.—Superficial or deep, sharply cut

ulcers; perforating ulcers of the mucous membrane; tenaceous and stringy character of secretions; soreness to touch, sometimes sharp pricking sensations and deep bone pains; *worse* mornings, in hot weather, *better* in cool weather and afternoons.

Attenuations from the third to the twelfth decimal are most reliable.

KALI BROMATUM

The bromine in this salt gives character to its action, and is termed "bromism." Among the effects are diminished cutaneous sensibility and papulo-pustular lesions known as "bromic acne." Other lesions of less frequent occurrence are macules, papules, tubercles, nodules, ulcers, vegetations, crusts or scales, and rarely bullæ. The cutaneous effects of this drug probably all originate from its action on the spinal cord, and are in nature tropho-neurotic, deranging nutrition.

The common *location* of eruption is in regions most abundantly supplied with glands, such as the scalp, face, shoulders, neck and extremities. *Sensation* is unimportant, and is never in proportion to objective features.

Seborrhœic dermatitis.—Indicated by epithelial crusts (scales) which dissolve in ether and when dry leave greasy stain, pale reddish skin beneath, red areola, associated with papular lesions (Seb. papulosa), absence of pruritic sensations, mental and physical dullness.

Acne simplex or indurata.—Papules with or without comedones slowly becoming tubercles and pustules; *worse* on face (forehead and nose), back of shoulders, chest, on hairy parts, and often extending sparsely beyond usual limits. Pustules yellowish-white, larger ones after discharge leave nodules or pigmentation, on healing leave small round depressed scars, in persons with thick, greasy skin.

Acne varioliformis.—Papulo-pustules, *worse* on upper part of forehead, scalp and nose; leave stains and scars.

Folliculitis decalvans.—Pathologically indicated by the strong affinity of kali bromatum for the follicles containing hairs; papulo-pustular and tuberculo-pustular lesions, discrete or confluent, leaving scars.

Conglomerate suppurative perifolliculitis.—Some of the rarer effects of bromide of potash on the skin are very similar to the lesions of this disease.

Erythema nodosum, E. induratum.—Fever with appearance of erythematous nodules on legs, tender to touch; color disappears on pressure; with moderate *sensations* of stiffness, burning, heat or tingling, *worse* from pressure, moving, and on getting warm in bed at night. Subcutaneous indurations, beginning in calves and sometimes appearing in other regions, firm to touch, with redness of the surface; in scrofulous subjects with weak circulation, enlarged glands, etc.; flat indurations with purplish redness and tending to break down and form ulcers.

Rosacea.—At any stage in subjects who are mentally dull, suffer from congestive headaches, vertigo or spasmodic affections; diminished sensibility of affected parts or moderate *sensations* of stiffness, burning, tingling, heat; *worse* from pressure and on getting warm from exercise.

Herpes zoster.—In protracted cases, when lesions fail to clear up after the characteristic neuralgic pains have ceased, or when redness spreads and lesions threaten to ulcerate, with mental and physical inertia and general loss of sensibility.

Dermatitis herpetiformis, Impetigo herpetiformis, Herpes gestationis.—When subjective symptoms are not severe and constitutional depression and lack of vitality are more apparent than usual, especially in the vesiculo-pustular types, when new lesions show a preference for hairy parts, constantly appear and pursue a slow course.

Pemphigus vulgaris.—Only in cases exhibiting general symptoms of “bromism,” new lesions constantly appearing and slowly undergoing change without marked subjective feeling.

Actinomycosis, Mycetoma, Mycosis fungoides, Verruga.—The pathogenesis of kali brom. indicates that it might be useful in the treatment of these rare and unusual types of disease.

Sycosis, Furuncle, Carbuncle, Scrofuloderma.—Persistent in course with little or no pain, especially when the onset begins in the spring.

Leprosy.—Anæsthetic or painless macular or superficial ulcerating lesions, stationary or extremely slow in course. Especially in premonitory or early eruptive stage attended with mental dullness, depression and general disturbances of nutrition.

As the susceptibility to bromide of potash varies widely in different individuals, the attenuations vary also in their therapeutic value. The writer has found the lower decimals of the most value, occasionally using small doses of the saturated solution in hopeful cases which did not yield readily to attenuations when the drug was well indicated.

KALI CARBONICUM

Anæmic weakness, sensitiveness to and dread of open air, sticking, burning or itching sensations, *worse* from motion and at 2 to 3 A.M., are some general characteristics in the pathogenesis of this salt always to be kept in mind in choosing it as a remedy. The surface conditions to which it is adapted are always dry unless artificially irritated, always chronic in course, and are sometimes attended with pigmentary changes.

Chronic eczema of the squamous or papular type, wherever located, occurring in the anæmic, attended with sticking, burning or itching sensations which are worse in the open air, is nearly always benefited by kali carb. If the regions involved are exposed to external irritations of various kinds, to blood

pressure in dependent parts. or to imprisoned secretions (sweat, etc.), vesicles and pustules may arise. Thus in some cases of eczema of the legs, hands, breasts, face and about the ears we may find kali carb. indicated for vesicular or pustular lesions which have succeeded dry forms of eruption.

Lichen planus occasionally presents some general indications for kali carb. besides the dry papular lesions and consequent pigmentation characteristic of this disease. Then this remedy may be thought of if the lesions itch intensely, and especially if minute vesicles appear after scratching or rubbing; or if *aggravations* follow from being in the open air, from bodily warmth produced by exercise, and *relief* is experienced from combined pressure and cold.

Lichen scrofulosus, an exceedingly rare disease in America, always associated with enlarged glands and other signs of struma, and always beginning before puberty, has presented good indications for kali carb. in some of the cases described. No verifications have been reported.

Favus, Tinea circinata, T. tonsurans, T. barbæ, T. versicolor.—When the patches are dry and superficial and the skin is anæmic and sensitive to air, kali carb. will help to restore the tone of the skin and thus aid in cure.

Kali carb. acts well in both low and high attenuations. If it fails in a high potency when well indicated, it should be given in a lower or low, for experience teaches that it only influences some cases in the latter preparation.

KALI IODATUM

In this salt the combining iodide largely dominates its action and brings it into relation with more active or more advanced types of inflammation, particularly of the vascular and glandular structures, but also showing the effect of potash in general systemic depression, in the slow development and persistency of lesions.

On the skin this drug has produced a great variety of lesions, erythematous and hemorrhagic macules, papules, pustules, wheals, vesicles, bullæ, nodules and fungoid growths. These effects vary greatly with the individual, and are more often due to medium rather than to large doses. Even a minute dose may produce a marked effect on persons sensitive to the action of this drug. The most constant *lesions* are papules, papulo-pustules and rather transient vesicles situated on an intensely hyperæmic base. Papules and pustules occur most commonly on the face, back of the shoulders, chest and arms, where the small blood-vessels and sebaceous glands are abundant. Erythema may be generalized, but when accompanied with vesiculation the groins, scrotum, hands, arms, feet, legs and the face are the favorite sites. *Sensations* of sticking, burning, itching or soreness may be hardly noticeable or of an intense character. When present they are *worse* in the evening and are sometimes *relieved* by scratching.

Acne.—Shot-like papules on the face, shoulders or chest, with intensely

hyperæmic areola, becoming pustular first at the apex, some advancing until totally pustular and leaving scars; or deep nodular lesions, intensely red, extremely slow in their involution, and painfully sensitive.

Eczema of the beard (papulo-pustular) occurring in individuals showing some evidences of the scrofulous, syphilitic or unknown constitutional taint, such as adenopathy, anæmia or emaciation, often without any marked subjective sensations in the lesions, may be cured with kali iodide. It is also a remedy in some cases of **eczema rubrum** of the legs, arms, or groins when the serous exudation is so abundant that crusts cannot form, or is less free and evaporates so rapidly as to leave portions of the surface dry and glazed but also without crusts. In such conditions burning, sticking, and drawing sensations often annoy the patient.

Like kali carb. this drug may also fill a place in the therapeutics of **lichen scrofulosus**.

Purpura.—On anterior surface of legs, lesions varying in color according to duration, the oldest being darker than the new; in the emaciated who are subject to rheumatic attacks or rheumatoid pains, frontal headaches and debility.

Dermatitis herpetiformis.—The polymorphous eruptions produced by kali iod. and attendant systemic depression should lead to its study in cases of this rare disease.

Pemphigus vulgaris.—In severe cases with numerous lesions preceded by considerable redness and involving the mucous membranes, especially when situated on hands, arms, feet or groins, and associated with enlargement of the lymphatic glands.

Syphilis.—Generalized or grouped. Shot-like papules, sometimes becoming pustular at the apex; macular, tubercular, nodular, bullous or ulcerating lesions of late secondary or tertiary period, which appear slowly and continue persistently with or without anæmia, loss of flesh, etc. Especially when eruption is most abundant on face and upper parts of trunk.

Molluscum contagiosum.—Especially of the face or genitals, when the lesions do not tend to soften or disappear.

Only lower attenuations are suited to the more pronounced affections of the skin, and frequently drop doses of the saturated solution are more homœopathic and effective.

KALI MURIATICUM

This salt, containing one equivalent of kalium and chlorine, according to Schuessler, stands in chemical relation to normal and pathological conditions of the fibrous tissue, and in secondary conditions of the surface membranes when infiltrations occur into the connective, or outwardly into the epithelial tissues, it has proved of clinical value. It is adapted especially to the second stage of congestive or inflammatory affections, when there is a general *aggravation* of symptoms from motion.

Seborrhœa sicca.—Whitish flour-like scales on scalp or face, in anæmic children, especially when appearing after vaccination.

Acne.—Infiltrated papules on the face, which remain indolent or are transformed into pustules with whitish contents. Acne apparently connected with gastric or genital (menstrual) derangements; especially valuable in the early stages before other remedies and to prevent suppuration of papules.

Onychia or paronychia.—Deep infiltration about the toe nail threatening suppuration.

Erythema multiforme.—When vesicles or bullæ form; in anæmic subjects who suffer from menstrual derangements; in persistent cases when lesions disappear slowly and sensations are *worse* from motion.

Dermatitis calorica.—Burns of all degrees to arrest progress of inflammation, especially of the second degree, when vesicles or bullæ form or when resolution is delayed. *Chilblains* in young women afflicted with menstrual disorders and cold extremities; with sensations worse from motion; with a tendency to vesiculation or necrosis of the skin.

Vaccination eruptions.—Vesicular and bullous eruptions which appear within three days after inoculation; erysipelatous, furuncular or gangrenous lesions, due to infection through the vaccine wound.

Chronic eczema characterized by sero-purulent exudation or the formation of whitish crusts or scales, persistency in course, enlargement of the lymphatic glands, and general anæmia of the subject, will often yield to the action of this remedy. It is adapted rather for intercurrent than prolonged administration and is never suited to acute forms of eczema. The sixth decimal.

Sycosis.—In early stage, pustules with whitish contents; later stage, dry, flour-like scales; associated with nasal catarrh; persistent in course, with glandular swellings and anæmia.

Lupus vulgaris, L. erythematosus.—As an intercurrent remedy in cases largely involving the glands of the skin and not responding to indicated treatment. Grayish-white coating on the tongue. Gastro-intestinal symptoms. *worse* from fatty or rich food.

Verruca.—Warts on hands (kali nitricum, face) which remain unchanged for months.

The sixth decimal seems to be the most reliable attenuation.

KALI PHOSPHORICUM

This is another salt found in animal tissues and fluids, and is probably essential to the proper stability of nerve nutrition and function. Clinically it has been found useful in diseases involving the nervous system or in which the expression is largely neurotic. Symptoms or conditions are always *worse* when the patient is unoccupied, at rest or alone, and are *better* from agreeable occupation, company or exercise. Such patients are apt to exaggerate their symp-

toms, are abnormally sensitive to all impressions, and often exhibit other effects of a low nervous tone.

Dermatitis calorica.—*Burns* of moderate extent or degree with exaggerated sensations, much *worse* when the patient is unoccupied, alone, or resting; or burns of like character which form offensive exudations and which, from contact, cause the adjacent sound skin to inflame. *Chilblains* of the hands, toes or ears in neurotic subjects, with excessive sensations of tingling, crawling or itching, *worse* when quiet, alone, or unoccupied.

Vaccination eruptions.—For same conditions as kali mur., but occurring in neurotic subjects who complain of severe painful sensations, always *worse* when alone, etc.

Kali phos. is remedial in some forms of so-called **neurotic eczemas** in which the symptoms (sensations of itching, crawling, etc.) are always *worse* when the patient is unoccupied or alone, from tiresome exercise or long rest, and from hard scratching or rubbing; *better* from agreeable occupation, company or exercise, and from gentle friction. Such patients are apt to exaggerate their symptoms, are abnormally sensitive to all disagreeable impressions and often exhibit other evidences of a low nervous tone. The forms of eruptive lesions are not characteristic, but if exudations occur on the surface, they are likely to be irritating and offensive and in long lasting cases the skin generally may appear withered.

Carbuncle, Anthrax.—Attended with exaggerated pain and other neurotic symptoms, *relieved* by agreeable occupation or company.

Epithelioma, Carcinoma.—In inoperable or advanced cases, for relief of pains and offensive discharges.

The third or sixth decimal attenuation is usually effective, but sometimes the second or even the first decimal may be none too low.

KALI SULPHURICUM

This salt is found normally in epithelial cells and the intervening fluids, and it has been found of value in the treatment of disease affecting the epidermal structures, particularly in the retrograde stage of inflammatory affections. At the acme the exudations may be solid or fluid—yellowish, serous, or sero-purulent; at a later stage the primary or secondary lesions may have receded, leaving the surface harsh and dry, or moist and scaly.

General symptoms of physical inaction from loss of vitality are usually concomitant indications as in most of the kalium salts, but the neurotic symptoms of kali phos. are not present.

Sensation or location is not *especially* characteristic, but all symptoms are usually *worse* in the evening and in a warm room, and are *better* in the cool open air.

Seborrhœa sicca.—Abundant dry, whitish scales on the scalp; headache *worse* in a warm room and in the evening, *better* in open air; adapted to chronic cases or late stages of more acute cases of seborrhœic disorders.

Alopecia prematura.—Symmetrical loss of hair from persistent seborrhœa (dandruff), scalp dry and harsh to touch, headache with characteristic modalities. May be used locally in aqueous dilution 1-100.

Atrophia unguis.—Undeveloped nails from general defects of nutrition; shrunken or irregular nails left after inflammatory conditions subside.

Eczema in an advanced stage occasionally presents modalities corresponding to those of kali sulph. The surface conditions may consist of a continuous oozing of a yellowish or greenish fluid secretion which can only dry into thin crusts before separation occurs from the persistently moist base beneath; or the eczematous surface may have passed into the squamous stage from which a rather abundant exfoliation of scales continues indefinitely, apparently from loss of power of the epidermis to regenerate normal cells.

Favus, Tinea tonsurans, T. barbæ, T. versicolor, erythrasma.—Superficial forms of favus or ringworm of the scalp or beard attended with abundant scales or exfoliation of the epidermis at the periphery as the disease spreads. In these and other fungus affections which are persistent the affected parts are harsh, dry or scaly; atrophic conditions therefrom. Local or general symptoms *worse* in the evening, in a warm room, and better in the cool, open air.

Epithelioma.—Involving only epidermal tissue; a thin serous or seropurulent discharge and thin crusts less adherent than usual in this disease.

The sixth decimal is commonly the best dose, but occasionally needs to be discarded for a lower attenuation.

KALMIA

This drug acts especially on the sensory nerves, causing tingling, numbness, neuralgic pains, headaches, shifting in location or character and with or without signs of inflammation; it slows and weakens the heart's action; most symptoms *increase* with the advance of day and diminish as night sets in.

Hyperæsthesia of the skin or Dermatalgia.—When characterized by shifting, *aggravations* by day, *relief* at night, and especially when associated with a slow, weak pulse and oppression of breathing.

Herpes zoster.—Sometimes in the pre-eruptive stage when tingling, pricking or neuralgic pains are *worse* by day, from motion and the patient becomes weak, tremulous and easily exhausted. Especially valuable for neuralgic pains following the acme of herpes zoster, or persisting as the eruption subsides.

Kalmia acts best, as a rule, in the second or third decimal attenuation.

KREOSOTUM

Carbolic acid is the chief principle in kreosote, but there is difference enough in their pathogenesis to give each a distinct place as a remedy. Kreosote disorganizes the blood, produces an irritant effect on the mucous membranes and the skin, which may thus cause general or local disturbances of nutrition, derangement of function or inflammation of the surface tissues. Through its action on the nerve centres a great variety of paræsthetic sensations may be felt in the peripheral nerves.

On the skin it produces functional derangements of the sebaceous and sweat glands, a tendency to ecchymoses (from slight causes), papules, vesicles, fissures, scales and crusts, persistent and unhealthy in character, sometimes degenerating into malignancy with offensive secretions, and rarely showing a gangrenous tendency. *Sensations* indicating kreosote are more often described as burning, itching, biting, stiffness or tensive pain. The favorite *location* for papular and scaly eruptions are the back of the hands, the face, ears, back and shoulders; for fissures, the hands and on or about the lips; while vesicles or wheals may occur at these points of selection or generally over the surface. The eruptions are *worse*, as a rule, at night in bed, from pressure of clothing, from friction, but may be *relieved* by scratching.

Seborrhœic dermatitis.—Papular and scaly lesions on the face, ears and shoulders, with “fatty” crusts, persistent in course, attended at intervals with burning, itching, etc.—*worse* at night and from friction, *better* in open air.

Canities.—Hair very gray, with sensitiveness of scalp to slight traction on the hair or to touch; neuralgic, rheumatic or suppurative pain from shoulders to head or in the vertex, *worse* at night.

Alopecia prematura.—Loss of hair from seborrhœa, with characteristic sensations and modalities.

Papulo-squamous or papulo-vesicular **eczema** of the dorsal surface of the fingers and hands, sometimes excited by repeated contact with irritating substances (trade eczemas) and obstinate in course, frequently present enough indications for kreosote to make it a curative remedy *par excellence*. Moist eczemas of the face or ears with offensive secretions, burning and itching pains, *worse* at night, may be cured with this drug.

Dermatitis gangrenosa infantum.—In this affection the vomiting, diarrhoea, emaciation, as well as the evolution and course of the cutaneous eruption, are somewhat similar to those credited to kreosote, and in other diseases have been verified by its use.

Pruritus.—Of hands, arms or legs, *worse* at night, from rubbing, *better* in open air, sometimes from scratching or changed thereby to burning; pruritus vulvæ after parturition or after menstruation, especially when latter discharge is offensive.

Urticaria.—Generalized form with intense itching, changing to burning

or scratching, *relieved* by exposure of skin to the air, *worse* from light rubbing or pressure.

Diabetic gangrene, Hysterical gangrene.—Severe burning pain, soreness and offensive odor after menstruation or associated with genito-urinary disorders.

Lupus vulgaris, Epithelioma, Carcinoma.—Ulcerating stage with offensive secretions, or in earlier stage of lesions at or near mucous outlets; especially of the pudenda, with shooting, stitch-like, burning, biting or tense sensations; *worse* at night and from pressure, *better* while in open air. Sallow complexion, great debility, sleeplessness and irritability.

Kreosote should be given in the second to twelfth decimal attenuation according to the nature of the case or the susceptibility of the individual.

LACHESIS

This serpent poison acting on the cerebro-spinal nerve centres and the blood causes peculiar nervous phenomena, low, hemorrhagic or malignant types of inflammation. the effects of which appear to be always *worse* after sleep, with general and local *sensitiveness* sometimes exaggerated beyond the objective severity of the disease. Other disturbances of *sensation* may consist of any variety of pruritus, but burning and itching are the most common. All kinds of primary and secondary *lesions* have been recorded, characterized by a dark red, bluish or purplish color, great sensitiveness to touch and a tendency to be most abundant on the left side.

Urticaria.—On face, back, shoulders or legs, especially when more numerous on left side; lesions are an unusual deep red color or hemorrhagic, very sensitive to touch and first appearing after sleep.

U. pigmentosa.—In cases which are hemorrhagic early show a marked preference for the face, neck and shoulders; the first or new crops show most after sleep and are sensitive to touch.

Purpura, P. hemorrhagica.—Extremely sore feeling over whole body, bluish-black lesions which sometimes look gangrenous; hemorrhages from mucous surfaces of very dark blood, especially at climacteric period, associated with general prostration.

Herpes zoster, hemorrhagic type.—Prevesicular redness, darker color than usual and vesicles become dark early, with burning pain and sensitiveness to even light contact especially for attacks in the spring or fall, with symptoms all *worse* after sleep.

Dermatitis herpetiformis (Impetigo herpetiformis, Herpes gestationis).—In adynamic cases when lesions appear slowly, become darker in color and are attended with soreness or much tenderness, lachesis may be studied as a remedy for this rare affection.

Pemphigus foliaceus, P. vegetans.—Partly filled blisters containing de-

composed or offensive serum; burning and soreness of the skin; mental and physical prostration; at the climacteric period, with most symptoms *worse* after sleep. *Pemphigus vegetans*. Sore lesions become fungoid, dark red to brownish, or look like a flat sponge with general indications for lachesis.

Carbuncle.—Bluish or dark red, left-sided lesions; burning *sensations*, *worse* at night, from pressure on near parts and after sleep; early adynamic symptoms as from blood poisoning. Carbuncles at the climacteric period or in fall or spring.

Syphilis.—Papulo-pustular or ulcerating lesions with offensive discharge, deep red, bluish or purplish areola and unusually sensitive; sensitive ulcers of mouth or throat; aching in the bones, pains in the head and other symptoms *worse* at night and after sleep.

Leprosy.—Yellowish, deep reddish-brown or livid hyperæsthetic spots, nodes or swellings; gangrenous looking, sensitive ulcers; hemorrhagic discharges from mucous outlets. As a palliative when symptoms are *worse* after sleep.

Erysipelas.—Bluish-red, swollen, sensitive skin; aching through crown of head, vertigo and other persistent cerebral symptoms, *worse* after sleep; early prostration, faintness and cold extremities. Especially for left-sided disease and pains.

Paget's disease.—Appearing at climacteric period; deep red or purplish lesions, sensitive to pressure, with burning or cutting pains, *worse* at night and after sleep. In later incurable stages for pains which are relieved by a free bloody discharge.

Mycosis fungoides, Verruga.—Lachesis may be indicated in these rare affections by slowly developing deep red, sensitive lesions, burning *sensations* and tendency to ulcerate, accompanied with constitutional symptoms and modalities like this drug.

The twelfth decimal attenuation is preferred for frequent or infrequent administrations. as the case may require.

LEDUM

Ledum palustre has an affinity for the superficial fibrous tissue of the joints and blood-vessels, the mucous membrane and the skin. Its action on the smaller joints may simulate chronic gout, and the eruptions of the skin resemble those which are sometimes observed in the gouty.

The most characteristic *lesions* are papules; less so are small hemorrhagic macules, vesicles, pustules and furuncular abscess. The favorite *locations* are the face, forehead, inner side of the forearms, wrists, fingers and dorsal surface of the feet, or the eruption may be generalized over the covered portions of the skin.

The *sensations* are characterized by their likeness to the sensations caused by the stings of insects and from other penetrating wounds, *i.e.*, biting, itching,

stinging, sticking and sensitiveness. *Shifting* of sensations, or the place of, is significant; and lack of bodily heat or coldness of the surface is a negative indication for ledum. *Aggravations* usually occur in the evening, from heat, especially from heat of bed, but do not last through the night. Scratching gives temporary *relief*, but is often followed by more intense itching, etc.

Papular eczema occurring in the gouty or associated with gouty pains in the smaller joints, may be cured with ledum. Eczematous outbreaks occurring in persons suffering from an ill-defined dyscrasia, and representing similar sensations and modalities to this drug, may often be relieved from the cutaneous disease by its action. It is particularly adapted to chronic eczema of the face occurring in alcoholics.

Lichen planus sometimes presents indications for ledum. The characteristic location of the eruption on the inner surface of the forearms and wrists corresponds pretty well with the bluish-red spots in the same location credited to this drug, and the sensations may be very like in character.

Urticaria.—Stinging, biting sensations without increase of surface heat; site of eruption or sensation of shifting, especially when associated with gouty pains, and all symptoms are *aggravated* by warmth of bed.

Prurigo.—Early stage, miliary papules following primary urticarial lesions; generalized eruption on covered parts; biting, stinging or itching sensations, *worse* from warmth of bed and only temporarily *relieved* by scratching.

Insect bites, Boils.—Shifting, biting, stinging, itching or sore sensations, *worse* in evening, from warmth, and temporarily *relieved* by scratching. Especially for gouty or intemperate subjects.

Ledum may be given in the second to sixth decimal according to the effect obtained.

LYCOPODIUM

This substance properly prepared as a medicine and given in suitable doses acts on the mucous membranes, the organs connecting therewith and on the skin. It disturbs the functions of these parts and induces secondary debility and changes of tissue with characteristic manifestations, frequently resembling the uric acid diathesis. Some general indications are a desire for the open air, mental confusion and weakness, fullness in stomach after little food and constipation.

It may cause only functional derangements and disturbances of nutrition of the skin, or nearly every form of *primary lesion*. Of these, pigmentary macules, inflammatory and non-inflammatory papules, vesicles and pustules are the most common; while secondary scales, ulcers and crusts have been observed. The course of most eruptions shows the loss of vital resistance and lack of reparative power in the dermal tissues.

Location is not very characteristic, but eruptions oftener occur where the skin is exposed, active or thick, as on the face, neck, hands, shoulders, thighs, etc., or where it folds on itself.

Sensations are varied; corrosive burning or itching, sticking, biting and soreness are the most common. The symptoms are usually *worse* from warmth, touch, on rising from bed, forenoons, and between 4 and 8 P.M. They are *better* in the open air, from rubbing and scratching, at noon, and after 8 P.M.

Anidrosis.—Dry, shrunken skin from lack of nutrition, in the emaciated or prematurely old, in those subject to uric acid disorders or attended with other characteristics of lycopodium.

Asteatosis.—General dryness and roughness of the skin from constitutional states, especially when associated with the peculiar gastric symptoms of lycopodium and signs of presenility (see anidrosis).

Acne.—Papules beneath the skin of forehead at first without color; similar lesions or papulo-pustules on cheeks, chin, between shoulders, etc.; grayish-yellow color of the face with occasional sensations of heat, especially in the prematurely old with lycopodium symptoms elsewhere.

Canities.—Hair becomes gray early, preceded or accompanied by dryness of the scalp, drawing or tensive sensations and some of the general indications of this drug.

Alopecia.—Great falling of the hair of the scalp with a concurrent increase in growth in other hairy regions. Useful when indicated by other local (see canities, etc.) and general symptoms.

Onychia.—Inflammation about the base of the nail, healed after discharged pus. In the rheumatic or gouty when other indications correspond.

Lentigo, Chloasma.—Freckles worse on left side of face and on nose; itching liver spots; in thin, debilitated young people who suffer from gastro-intestinal, genito-urinary and other affections with symptoms indicating lycopodium.

Erythema intertrigo, E. caloricum (chilblains).—Redness between folds of skin with burning, sticking or soreness, *worse* from warmth, forenoons, between 4 and 8 P.M.; chilblains on fingers with similar conditions and symptoms.

Chronic eczema associated with urinary, gastric or hepatic affections, or dependent on a dyscrasia which originated from functional derangements, frequently calls for lycopodium, either as an intercurrent or longer continued remedy. Such eczemas usually begin as a papular eruption, which becomes vesicular or moist, bleeds easily, and behind the ears and in other folds of the skin assumes a raw condition with an offensive sero-purulent and irritating discharge. If situated on or near the nose and lips, they may appear swollen, and in cases of long duration, the cervical glands may become swollen and tender. When the eruption begins at the back of the head or neck and extends forward this remedy is especially indicated.

Psoriasis occasionally presents a few good indications for lycopodium, either in the general symptoms or in connection with the functions of digestion, secretion or excretion. A dark red, almost raw appearance of the lesions, scanty scales easily bleeding on slight irritation, may suggest the use of this remedy when other symptoms are wanting.

Favus, Tinea tonsurans.—Beginning at several points with marked tendency to irritate the scalp; abundant crusts or scales; fetid or offensive odor; pruritic *sensations, worse* from warmth, *better* in open air.

Impetigo contagiosa.—Persistent cases; offensive odor; heat of room or bed excites scratching; in prematurely old children; *relief* of all subjective symptoms in the open air.

Furuncle, Carbuncle.—Any location when occurring in the prematurely old, gouty or rheumatic, with *aggravations* of pain from hot applications, between 4 and 8 P.M., *better* during the night. Following excessive use of alcoholic stimulants; periodic boils.

Phagedena tropica.—Lycopodium might prove curative when the disease starts at site of a small scratch; in subjects suffering from malnutrition, debility, with local or general *aggravations* from warmth and moisture. Full feeling in stomach from little food. desire for open air.

Lupus vulgaris, Syphilis.—Recent ulcerations without tendency to heal under treatment and apparently due to nervous or systemic depression; hunger with satiety which prevents sufficient food being taken; ulcers of the mucous membranes (especially right-sided) of grayish-yellow color. General *aggravations* from warmth, on rising, between 4 and 8 P.M.; *relief* from cold and in open air.

Nævus pigmentosus, N. vasculosus.—With hypertrophy or elevation of the surface and tendency to enlarge in size; in the prematurely old with relaxed or wrinkled skin, loss of mental and bodily vigor, fullness in the stomach from little food; constipation, uric acid diathesis with general *modalities* of lycopodium.

Fibroma, Verruca.—Large isolated, painless, sessile or pedunculated wart or tumor-like growths; general dryness of the skin and signs of premature age with mental weakness or confusion and general lack of proper nutrition. In suitable cases warts will disappear under changed nutrition from the influence of this drug and fibromata may cease to multiply.

The medicinal value of lycopodium depends on its preparation, therefore it should be seldom prescribed below the twelfth decimal. Often indeed a higher attenuation seems to act with greater promptness.

MANGANUM

The salts of manganum (acetate, carbonate, chloride and oxide) are believed to produce their effects through the blood like ferrum. They cause fullness in the head, derangements of menstruation, motor paralysis, papular and vesicular eruptions of the skin, and a great variety of paræsthetic sensations. Manganese is only adapted to the treatment of chronic cutaneous disease.

In **chronic eczema** associated with amenorrhœa, aggravated at the menstrual period or occurring at the menopause, this drug will sometimes afford

relief when the more common remedies fail. The pruritic sensations are well marked, though variable in quality, and are temporarily *relieved* by pressure and scratching.

Rare cases of **psoriasis** in females, first appearing about puberty with some menstrual irregularity, or recurring at the menopause, may be relieved by remedial doses of manganese. The small papules tipped with scales produced by this drug are very like the primary lesions of psoriasis.

Lichen planus, a chronic disease which probably arises from malnutrition of the nervous system, sometimes affecting the generative functions, is characterized by *lesions, location* and *sensations* similar to those found in the pathogenesis of manganese. Cases of lichen have been palliated by this remedy, and it will probably be found curative in others.

Pruritus.—Itching, biting, etc., sensations here and there, chiefly below the knees, usually *worse* from changes of the weather; *relieved* temporarily by scratching, especially at critical periods of life in anæmic subjects, with sense of fullness in the head.

Prurigo.—Anæmic subjects, especially girls who suffer from menstrual irregularities, and eruption of pruritic sensations are *worse* at approach of menses and from weather changes.

Attenuations from the third to the twelfth decimal may be used.

MERCURIUS (MERCURIUS VIVUS)

Mercury acts primarily on the blood, producing a sort of fatty degeneration with a marked reduction in the number of its corpuscles and in the quantity of its fibrin and albumen. A veritable hæmatic anæmia and cachexia result; the functions of the body are deranged, and with saturation of the system destructive inflammation may attack almost any organ or tissue. The pathogeneses of all the mercurial preparations are very similar, though the chlorides, cyanides, iodides and sulphides are largely influenced by the action of the combining element in each salt respectively.

Some general indications for mercurius are weariness, prostration, trembling of voluntary muscles (tongue, hands, etc.), deep boring pains, offensive (foul) odor of the secretions and glandular swellings. Special indications are, *aggravations* at night, from warmth of bed, during perspiration or exercise, and from wet and cold; *amelioration* from rest and during the day.

On the skin mercury has produced nearly every form of primary and secondary *lesion* observed in cutaneous disease. The more characteristic are macules, papules, vesicles, ulcers, scales and crusts. *Location* is not especially characteristic; the more common sites of selection are the head, face, flexor and inner surfaces of the extremities and the genital region. *Sensations* may vary widely from an intense itching, burning or neuralgic pain to the milder sense of tension or swelling.

Chromidrosis.—Sweat leaving yellowish stains, oily at night, on soles, on palms, on fingers, which look spongy and wrinkled.

Miliaria.—Sudamina on abdomen, chest and arms; discrete vesicles, either transparent or translucent (on abdomen); eruption preceded by pruritus and followed by desquamation; from excessive sweating due to systemic debility or violent exercise.

Seborrhœic dermatitis.—Oily perspiration, sharply defined red macules on abdomen, inner surface of arms and thighs, genitals, chest or scalp followed in a few days by desquamation, leaving surface red or pigmented; burning or itching, *worse* at night, from exercise, wet and cold weather; in anæmic individuals the process tends to repeat its course before resolution from the previous one is complete.

Alopecia.—Falling of hair after acute or subacute seborrhœic affections, from constrictive headaches, *worse* at night and painful to touch; *symphilitic* alopecia, *worse* at occiput.

Atrophia unguis.—Exfoliation of nails, in cachectic anæmia, with other mercurius symptoms, or following non-specific affections of the nails under like systemic conditions.

Erythema intertrigo.—Redness between thighs and genitals, with intense burning, soreness or rawness, *worse* at night, from perspiration, warmth of bed, in wet and cold weather, better from rest and during the day; with swelling of neighboring glands.

Erythema multiforme.—Erythematous spots on trunk and anterior aspect of extremities; in circles which later run together; light red, scarlet, bluish-red, darkest at margins; with itching changed to burning by scratching; symptoms *worse* from warmth of bed, at night, *better* during day.

Eczema of the papular, vesicular or purulent type occurring in the anæmic or cachectic, who have a pale or sallow appearance of the unaffected skin in contrast with an intense redness of the affected parts, will often present other indications for mercurius. Eczema *intertrigo* beginning as an erythema, on which vesicles form and produce a weeping surface, the intensely reddened skin extending continuous with or in patches beyond the line of contact of the opposing surfaces, frequently calls for this drug. The exudation may become sero-purulent, offensive and parts of the affected area may appear like superficial ulcers, or look raw and angry (eczema rubrum). It is sometimes indicated in papular eczema beginning on the flexor surface of the joints of the elbows and knees and tending to merge together to form thickened, scaly patches.

Pustular eczema in children occurring on the scalp and face, encircled with intensely red areolæ may suggest this remedy. In such eczemas the pruritic sensations are *worse* from exercise, perspiration and at night; *better* from rest and during the day. Sometimes scratching gives relief, or again it may *cause* bleeding and painful smarting of the parts. The lymphatic glands often swell in chronic cases.

Psoriasis of recent origin, especially when located on the back of the hands,

forearms, scalp, thighs, chest or abdomen, and the lesions beneath the scales are a dark or brownish-red color, may be relieved or cured with mercury if general or other special indications for this remedy are present. It is often of service for psoriasis of the finger nails.

A rare inflammation of the skin described as *dermatitis repens* presents some resemblance to the superficial serpiginous ulceration of the skin attributed to mercury.

In the early stage of *lichen planus* of the skin, and of the mucous membrane of the mouth, in debilitated subjects mercury is sometimes indicated. The location on the wrists, forearms, abdomen and thighs of bluish-red, scaly or shiny papules, the aggravated itching at night, from heat, from undressing, etc., may be counted as good indications for this remedy.

Scabies, Sycosis, Erythema.—Sensitive or painful, rapidly formed pustules or suppurative lesions with acrid or offensive secretions and deep red areola; debilitated or cachectic subjects; itching, burning or tension, *worse* from exercise, warmth of bed, at night; some *relief* from rest and during the day.

Syphilis.—See article on.

Leprosy.—Ulcerating and other destructive processes, especially of face and mouth, with odor of decomposition and general or local *aggravations* at night, from extremes of temperature, and *relief* during the day.

Mercurius vivus may be administered in the third to the twelfth decimal attenuation.

MERCURIUS BINIODIDUS

The iodine in this drug predominates over the mercury in action and in the cutaneous sphere determines the affinity for the glandular structures, while the symptoms are more likely to resemble those of the latter. It produces discrete papulo-pustules, crusted *lesions* from under which the pus may ooze, chiefly *located* on the hairy parts and attended with *sensations* of pricking and itching.

Eczema of the hair follicles (*E. folliculorum*), sometimes remaining papular and scaly, sometimes becoming pustular and capped with crusts, located on the scalp, other hairy parts or at the anus, attended with a variable degree of itching, pricking or soreness, and especially if accompanied with swelling of the neighboring lymphatic glands, may often be cured with *mercurius biniodide*. It is indicated in fissured eczema of the anus and for eczema of the *umbilicus* which originates from follicular inflammation.

Tinea barbæ, Sycosis.—Papules, tubercles or nodules, becoming pustular, with considerable infiltration; oozing of purulent or muco-purulent fluid; pricking, sore or itching *sensations* often *worse* from warmth and at night; glandular swellings; depression and irritability.

Ecthyma.—Pustules passing rapidly into superficial ulcers with hard base, dark red areola and crusts from which pus oozes; sore and pricking *sensations*, *worse* at night, *better* in open air.

Yaws.—Papules, tubercles and growths which tend to soften and ulcerate, with *constitutional* symptoms similar to those produced by iodine and mercury.

The second and third decimal attenuations are suitable for most of the above affections.

MERCURIUS CORROSIVUS

The bichloride of mercury is a corrosive irritant poison to animal tissues, much more violent in action than mercury alone, with a special affinity for the mucous and serous membranes. On the skin it gives rise to harshness, dark red erythema, small, dusky papules, to vesicles or bullæ, *sensations* of itching, burning, etc., with *aggravations* and *ameliorations* similar to mercurius vivus.

Lichen ruber at some stage of its course may present cutaneous symptoms similar to this mercurial, and it is quite possible that it might share in a measure with arsenic as a remedy in curable cases of this disease. In **lichen planus** mercurius cor. should be compared with other drugs in selecting a remedy.

Ecthyma.—Originating from papular or vesicular lesions; dark, dry crusts humid at the circumference; sticking, burning pains, *worse* from warmth of bed.

Syphilis.—See article on.

Paget's disease, Epithelioma.—Painful glandular swelling about nipple or dusky patches with sticking or burning pains; spreading, uneven, irregular ulcers which bleed easily and discharge thin bloody or acrid fluid; severe shooting, lancinating pains, *worse* at night, from warmth and not relieved by cold.

The sixth decimal is a good average attenuation for use in skin diseases.

MEZEREUM

This drug acts specifically on the skin, the bones, and in a less specific way on the mucous membranes, producing irritation, neuralgic pains, and various stages or types of inflammation.

On the skin it first causes pruritic *sensations* particularly of parts least cushioned by fat beneath. If the irritation set up is continued erythema, papules, scales, vesicles or pustules appear. The latter become covered with thick crusts underneath which the purulent exudation goes on and adds to their thickness, or oozes out at the sides and excoriates contiguous surfaces; or scratching may cause bleeding and inoculate new parts. The secretion of sebum may be increased, rendering the exudations more or less fatty in character. Distinct vesiculation is not a common effect of mezereum, but serum may form underneath the horny layer of the epidermis, producing a more or less extensive exfoliation of the latter. When ulcers form they secrete a purulent, adhesive fluid, are surrounded by a dark red areola, and they bleed easily on removal of the crusts.

The *locations* on which the more characteristic effects of the drug have been observed are the scalp, behind the ears, the face, wrists, hands, arms, chest, thighs and legs, but the distribution may be general and is likely to be worse on one side of the body. The *sensations* are usually pronounced and consist chiefly of intolerable itching, crawling and sticking, which may be changed to burning or gnawing by scratching. Twitching and other varied sensations may commingle or supplant those named.

Aggravations occur at night, from warmth, scratching, contact and in the damp weather. *Amelioration* is felt in the open air, while walking (though there may be sensitiveness to cold air). Sensations of chilliness may be felt with the more intense pruritus.

Seborrhœa sicca.—Dry scurf on scalp; crust looks chalky and extends to brows and nape; hair inclined to bristle; itching, *worse* from warmth at night in bed, converted into burning when scratched, leaves brownish stain when healed.

Eczema of the pustular or purulent type is most likely to correspond to the pathogenesis of mezereum. Such forms may occur on the face, scalp, behind the ears, or on the hands in infancy or childhood. Often the little patients scratch or rub the parts until they bleed, to be followed by a more abundant purulent discharge and crusting if the latter are permitted to form. On the scalp the hair may become matted with the dried exudation, and if neglected, the imprisoned secretions beneath (and sometimes pediculi) contribute to a most offensive condition to sight and smell. The intense pruritic sensations are *worse* at night and from heat; *better* in the open air and sometimes from scratching.

In adults a mezereum type of eczema may occur on the back of one hand or wrist (usually the left), or more rarely on other regions. In such cases the irritating discharges may cause vesicles to appear at the border of the lesions or patches.

Psoriasis may rarely exhibit indications for mezereum. The dark red patches on the head, arms, chest, thighs, back, or more generally distributed and incompletely covered with round, dry, whitish scales are sufficiently like psoriasis, provided the subjective sensations also correspond. Itching, burning, etc., of the lesions, worse at night, from warmth, and which bleed easily on scratching are good indications, likewise associated chilliness. Psoriasis of the palms with some of these indications has been cured with this remedy.

Pityriasis rubra, a very rare disease, has sensations of chilliness, burning, itching, tingling, etc., with more or less exfoliation of the epidermis something like the effect of this drug. It should be considered in the therapeutics of a case.

Pityriasis rosea may resemble the mild effects of mezereum. The chilliness and the nightly aggravations of itching, when present, are especially characteristic.

Pruritus.—Of old people and in lean regions of the body. Itching or crawling sensations, *worse* at night from heat, scratching (sometimes changed

to burning), *better* in the open air and temporarily from stimulants; when associated or alternating with gastric disorders attended with burning pains or with neuralgic attacks.

Herpes zoster.—Of intercostal region chiefly, when lesions tend to suppurate, with burning sensation from pressure or friction, *worse* at night from heat, damp weather, *better* from cool air. When neuralgic pains continue after eruption begins to subside or has cleared up.

Favus, Tinea tonsurans.—Unilateral distribution of one or more scaly lesions, attended with marked pruritus, *worse* from warmth and from scratching or changed in character by the latter. Sometimes associated with eczematous inflammation with thick crusts under which pus collects.

Syphilis.—Secondary or tertiary eruptions more abundant on one side, attended at times with sensory disturbances in the skin, bruised and weary feelings in the joints, aching in the shafts of bones; periostitis or nodes of superficial bones; ulcers, sensitive, easily bleed on removal of crusts; elevated whitish crusts (rupial syphilide); persistent secondary affections of the throat with redness of affected parts and hoarseness; intermittent chilliness with varied conditions; special or general *aggravations* at night, in damp weather, from local warmth, and *relief* from open air.

Scrofuloderma.—One-sided deep ulceration with thick whitish-yellow crusts and oozing of yellowish exudation; or papulo-pustular lesions limited to or *worse* on one side; all lesions subject at times to unusual disturbances of sensation with some *modalities* characteristic of mezereum.

This drug can be used in a wide range of attenuations. The sixth decimal is a reliable dose, but cures have been reported from the higher attenuations up to the two hundredth.

MURIATICUM ACIDUM

In proper doses this acid is capable of modifying (through the blood) the functions of the mucous membranes and the skin so that the secretions become foul, inflammations easily arise, and sometimes an asthenic fever develops.

The skin *lesions* may be papular, vesicular, pustular or ulcerative. These are commonly *located* in the neighborhood of the mucous outlets or on the extremities. Itching, smarting and burning are the most common *sensations*, but their absence should not be counted against the drug. The pruritic sensations are usually *worse* while at rest, from warmth and touch; *better* from scratching and rubbing. Some general indications for this remedy are *weakness*, irritability, vertigo on walking, cachexia, and in chronic conditions swelling of the cervical glands.

In **cachectic eczema** muriatic acid may be an important remedy when concomitant states of the mucous membrane exist. Unhealthy secretions, irritation, aphthous or ulcerative spots of the mucous lining of the mouth are always good indications for it, in an associated papular, vesicular or crusted eczema

about the nostrils, mouth or on the other parts of the face, ears or neck when the general and special symptoms correspond. It will be found useful in eczema between the *thighs*, excited by contact of irritating perspiration, urine, urethral discharges or feces in anæmic children or adults when benzoic or nitric acid fails. **Eczema rubrum** of the legs sometimes presents good indications for this medicine and is cured by its action. It is to be remembered as an occasional remedy for **eczema ani**, especially when accessory to hemorrhoids.

Lichen scrofulosorum attended with intercurrent eczematous outbreaks, ulcerative dermatitis, with adenopathy and other signs of strumous cachexia would probably yield in a measure, if not wholly, to the action of muriatic acid.

Ecthyma.—In weak, scorbutic or cachectic subjects; foul smelling ulcers or crusts on the lower extremities, with burning sensations at margins, *worse* from warmth; associated with affections of the mucous membrane of mouth or throat.

Carbuncle.—When intercurrent with scorbutic conditions or anæmia due to previous disease, with offensive (putrid) odor of secretions from mucous membranes, with or without ulcerations thereof; burning sensations especially at circumference, *worse* from warmth.

Epithelioma.—Involving the mucous membrane at some outlet of the body; base of ulcer grayish-white, edges of a bluish-red color, accompanied with smarting or burning *sensations*; with general asthenia and periods of great prostration.

Muriatic acid should be always given in aqueous solution and in a low attenuation, third to sixth decimal attenuation.

NATRUM (SODIUM) SALTS

The soda salts act especially on the vegetative functions of the system, impairing the quality of the blood and the various secretions, thus deranging the processes of nutrition and in time inducing dyscrasie which simulate a variety of diseases. Certain symptoms, such as vertigo, headache, palpitation, faintness and weariness, are quite common; periodicity is often a feature, and symptoms in general are *better* in dry and warm weather and *worse* in cool and wet weather.

In the cutaneous sphere there may appear localized sweating, especially of the hands and feet; localized and abnormal activity of the sebaceous glands manifested by fatty secretions. The same or other parts may at times become dry, harsh and over-sensitive to touch; or pigmentary and erythematous macules, papules, vesicles, nodules, pustules, scales, crusts and warty growths may develop. The hair may become thin and the parotid and lymphatic glands painful and swollen.

NATRUM ARSENICATUM

In this drug the action of the sodium is only modified by the arsenic. The most characteristic *lesions* of the skin are pigmentary macules on the face, miliary papules on the face and neck, and red, scaly patches over the sternum. *Sensations* of itching and burning are *aggravated* by warmth, from exercise or the bed, from washing, scratching, and from allowing scales to accumulate on the patches.

Seborrhœic dermatitis.—Miliary papules on face and neck (seborrhœa papulosa); irregular reddish-yellow patches on face; reddish scaly patches on chest; itching or burning under accumulated scales, *worse* from warmth in bed or from exercise, washing, scratching and when scales re-form.

Chloasma.—Yellowish, with patches on cheeks and forehead; in the cachectic who have lost much in weight; in sufferers from chronic catarrh of nose or throat or from pulmonary disease.

In **psoriasis**, especially on the anterior chest or lower part of the back. When itching is felt from the presence of the scales, from warmth, and the lesions become a darker red after removal of scales natrum ars. is to be considered as a remedy.

Lichen rubra has been favorably affected by this salt.

Pityriasis rosea is characterized by circumscribed pinkish, yellowish or reddish scaly patches, which itch, as a rule, worse at night—sufficiently like the scaly lesions attributed to natrum ars. as to suggest it as a medicine probably adapted to some cases.

Tinea versicolor.—Brownish scaly spots chiefly on or near sternal region of trunk; pruritic *sensation* from warmth of clothing or exercise. Helps restore normal resistance of the skin.

Syphilis.—Secondary macular, miliary, papular or scaly syphilide most abundant on chest, neck or face. Absence of pruritic sensations or only excited by bodily warmth, bathing or from presence of scales. Valuable as an intercurrent or alternate remedy in cachectic stage, with swelling of lymphatic glands.

This drug will be found effective in suitable cases in the third to sixth decimal attenuation.

NATRUM MURIATICUM

This is the most important of the natrum salts and includes in its action on the skin all the essential pathogenesis of *natrum carbonicum*. Associated general conditions are important. Some of these are emaciation, especially of the trunk, mental excitement, irritability or indifference, throbbing headache, vertigo and physical weakness. More common *lesions* of the skin are papules, vesicles, pustules, scales, crusts, fissures and superficial ulcers. More char-

acteristic *locations* are the back of the neck at margin of hair, back of ears, face, flexor surfaces of knees, elbows, outer part of arms and legs, genital region, hands, feet and scalp. Often there is a tendency for lesions to assume a circular or segment of a circular outline. *Sensations* may be pronounced or consist of soreness, itching, sticking, biting, smarting or burning. These are usually *worse* forenoons, after tea, at night, in the open air and from bathing the parts.

Hyperidrosis.—Sweating on hands or head, *worse* at night, or periodic sweating of other parts at night, in scorbutic, anæmic and emaciated individuals.

Seborrhœic dermatitis.—Greasy skin, papular, gritty and scaly lesions on or about the margin of scalp, face, extremities and genital region, with soreness, smarting, etc., *worse* morning and night, from bathing, or exposing covered parts to air; debility, periodic complaints.

Alopecia prematura.—Falling of hair from general lack of nutrition and local seborrhœic disorders, musty odor from scalp, itching, tension and sensitiveness of scalp; especially with characteristic headache, *worse* from talking, reading, lying down; *better* from pressure.

Falling of hair of beard, and mons veneris, with general symptoms of natrum mur.

Onychia.—Inflammation of sides, root and beneath nails, with suppurative sticking pain and tension; from eczema or other diathetic disease with other indications for this remedy.

Erythema multiforme.—Circular lesions, with tendency of eruption to spread over body; like a bruise on back of hands; preceded and attended with fever, thirst and headache characteristic of nat. mur.; with sensations of burning, sticking, biting, itching or soreness, *worse* forenoons, at night, in open air, from taking tea and from bathing the parts.

Eczema occurring in the cachectic (scorbutic), subacute and intercurrent, or chronic and persistent, may develop symptoms similar to those of natrum mur. In the subacute form it is usually vesicular with oozing of a corrosive fluid, and located about the hair line on the posterior surface of the neck, back of the ears, in the flexures of the extremities, on the arms, or on the genitals. Chronic forms of eczema may follow the acute or subacute, the skin become infiltrated, deep red and more or less covered with crusta. Deep fissures may appear, bleed easily or discharge a bloody serum. Such cases may continue indefinitely (better and worse) or pass into the squamous form. Other dry eczemas calling for natrum may originate from erythematous or papular lesions, which may remain discrete or merge together to form larger scaly patches. The latter type occurs on the back of the hands and often attacks one or more of the nails, which become dry at the angles of attachment and irregular in shape. Follicular (papular) eczema of the extremities occasionally requires this remedy. It is also indicated in some cases of pustular or squamous eczema of the scalp attended with thinning of the hair. In severe

cases of eczema the lymphatic glands are found swollen in some degree. In the foregoing forms of this disease natrum mur. is curative when indicated by its general characteristics and modalities, which should be carefully studied.

Lichen planus may be accompanied with some general symptoms indicating natrum mur. Then the small and large papules on the arms, thighs and abdomen credited to this drug would supply the corresponding surface indications in cases attended with pruritis.

Keratosis pilaris in lithæmic children and young adults has been helped with natrum carb., and natrum mur. has been found indicated and curative in **keratosis palmaris et plantaris**.

Pruritus, P. vulvæ.—Periodic type, most frequent in late autumn, sometimes malarial in origin; pruritic *sensations* vary in quality and degree, but more commonly occur in cold and wet weather, *worse* morning and night, after drinking tea, and are *relieved* somewhat by rubbing and walking about. **Pruritus vulvæ** with dry, sore feeling in vagina, backache, bearing down in pelvis, *relieved* by sitting or lying down, especially with menstrual derangements or subinvolution of uterus and general cachectic debility.

Urticaria, U. pigmentosa.—Persistent or periodic type, *worse* on arms and hands, color increased by rubbing; intense itching in early morning or late at night, especially when associated with malarial disease. **Urticaria pigmentosa** associated with a scorbutic or malarial cachexia; tendency to circular grouping of lesions and a periodic increase of pigmentation.

Purpura hemorrhagica.—Few lesions of the skin of dependent parts (hands, legs, scrotum), with bleeding from mucous outlets, associated with great weakness, vertigo, *relieved* by lying down; spongy gums, dry mouth, mapped tongue, thirst; marked periodicity in attacks or symptoms of one attack.

Herpes.—Associated with periodic fever, of mucous outlets and adjacent skin; grouped vesicles with acid contents, red areola, attended with pricking and itching sensations, *worse* from pressure and warmth.

Dermatitis herpetiformis (Herpes gestationis, Impetigo herpetiformis).—Periodic or intermittent outbreaks of vesicular, erythematous, pustular, etc., lesions which tend to assume a circinate arrangement, irregularity in distribution and development, attended with intense pricking, itching or burning *sensations*, preceded or accompanied with febrile and other constitutional disturbances, may all call to mind similar phenomena in the pathogenesis of natrum mur. It ought to be of special value when the subject is suffering from pelvic disorders, is debilitated or cachectic, and sensations are *worse* at night, from bathing, etc.

Favus, Tinea tonsurans.—Musty odor from the scalp; round or circular scaly patches on occiput near the margin of the hair or about the nails; thin and anæmic children; pruritic sensations, *worse* after washing parts.

Furuncle.—On the genital region or the neck near hair line with a tendency to group in segment of a circle; periodic outbreak of boils; smarting, burning, sore or sticking sensations, *worse* morning and night and from washing; in the debilitated from malaria, scorbutus, etc.

Lupus vulgaris, L. erythematosus.—Dry, nodular, circular or rounded lesions or patches situated on face, neck or extensor surface of extremities associated with some of the general characteristics of natrum muriaticum.

Syphilis.—As an intercurrent remedy when eruptions are persistent in anæmia or cachectic stage; sore, dry mouth; gums easily bleed, map-like appearance of tongue, weakness and sinking in stomach; scaly fissured patches; moist lesions about anus, scaly and wart-like lesions on palms or soles; emaciation, especially about neck; *aggravations* at night, forenoons, after bathing or general periodic aggravations every few days.

Verruca, Clavus.—Following excessive use of salt or *aggravated* by living at seashore; on palms or soles and persistent without apparent cause; large and sensitive warts or corns.

Natrum mur. only develops its medicinal virtues by attenuation, therefore it should not be given in the lower preparations. The sixth decimal to the two-hundredth centesimal have proved effective in skin affections. The twelfth decimal is perhaps the best single preparation.

NATRUM PHOSPHORICUM

This sodium salt, according to Schuessler, stands in relation to the production of an excess of lactic acid in the system, and is curative in some affections associated with hyperacidity. This condition is said to be indicated by a *moist, creamy or golden yellow coating on the back of the tongue* and soft palate, acid or coppery taste, sour stomach, sour smelling sweat, mental anxiety and apprehensiveness, etc. Symptoms generally are *worse* during a thunderstorm; during the menstrual period and in the afternoon and evening.

On the skin pronounced itching, biting or burning *sensations* may be felt at first without eruptions or with a sparse outbreak of erythematopapular, nodular or vesicular *lesions, aggravated* especially by rubbing after going to bed.

Erythema intertrigo.—With sour smelling perspiration or exudation and characteristic tongue, etc.; especially when seated in shallow folds of skin about the anus, with rawness or other sensations, *worse* after retiring to bed.

Erythema multiforme.—Papular and nodular lesions on broad erythematous base, *worse* on lumbar region, buttocks and thighs; eruption like insect bites increased by rubbing, with chilliness and flashes of heat, acid sweats, mental anxiety and apprehension.

Pruritus.—In early life (childhood or youth), when characteristic symptoms of hyperacidity are present; pruritic *sensations* in folds of skin, *worse* at night in bed; of young women at the menstrual period.

Urticaria.—Generalized papular and nodular lesions like insect bites, *worse* on lumbar region, buttocks and thighs; biting, itching or burning *sensations, worse* from rubbing; with chilliness and flashes of heat, acid sweats,

mental anxiety and apprehensiveness; attacks during a thunderstorm or at the menstrual period.

The sixth decimal is to be preferred for use in most cases.

NATRUM SULPHURICUM

This salt is said to be present in the intercellular fluids and to determine largely the excretion of water from the system. It has been found adapted to complaints associated with the so-called hydrogenoid proclivities of the system, always *worse* from damp weather or from living in damp houses or places, generally from lying on left side, from motion, and in the evening; *better* from being in the open air. In skin affections it is indicated more by conditions than by lesions.

Hyperidrosis.—Sweat on scrotum when sitting, yellowish sweat; sweat on head preceded by vertigo, from habitual exposure to dampness, when there is puffiness of the skin and symptoms of sodium and sulphur.

Onychia or paronychia.—Burning, sticking, or ulcerative pain behind and under nails; tearing, pulsating pains in tips of fingers; *better* out of doors.

Pompholyx.—Vesicular lesions imbedded in sides of palms or fingers or hands, in subjects habitually exposed to dampness. Weariness, vertigo, palpitation, etc., generally *relieved* while in the open air.

Pemphigus.—Few lesions on extremities; after long exposure to dampness; in debilitated subjects with symptoms *worse* in damp weather and *better* in the dry, open air.

Impetigo contagiosa.—Lesions filled with yellowish fluid, which dry into yellowish crusts; children who live in basements or damp rooms; greenish-brown coating on back of tongue.

Sycosis.—Very yellow pustules and crusts; in the debilitated who have been habitually exposed to dampness or with local or general symptoms *worse* in damp weather.

Verruca.—Warts on head, trunk or about anus which first appeared after long or frequent exposure to dampness, or after gastro-hepatic disorder attended with greenish-gray or brown coated tongue and *aggravations* from lying on left side.

The third to sixth decimals are suitable attenuations for the above diseases.

NITRUM ACIDUM

Nitric acid disturbs the functions, inflames and disorganizes the tissues, especially of the mucous membrane and the skin, and induces dyscrasia simulating the conditions sometimes observed from syphilis, scrofula or from the action of mercury. Mental irritability, excitement, depression, emaciation and

physical weakness are *general* symptoms. In the skin it may give rise to abnormal secretions or almost every primary and secondary *lesion*. More characteristic are pigmentary macules, papules, vesicles, pustules, ulcers, fissures, crusts and warty or fungoid growths. The favorite locations are at or about the muco-cutaneous outlets or on the face, neck, hands, fingers and trunk. *Sensations* are characteristic, such as sticking (splinter-like), stinging, pricking, itching, burning heat, sensitiveness and tension, and may be felt in or about the lesions. These may be mild in character, though often severe; they are *worse*, as a rule, from touch, uncovering, getting wet, at night, on rising, and are sometimes *better* from gentle rubbing, bathing and from warmth.

Nitric acid acts best on the dark complexioned and those who have reached or passed middle life.

Hyperidrosis.—Sweating on soles causing soreness of toes and balls of feet, at night or every other night with sticking sensations; sweating of palms, hands cold, nails blue; relief from gentle friction and warmth.

Bromidrosis or uridrosis.—Offensive sweat in axillæ at night; sweat with odor of horses' urine.

Seborrhœic dermatitis.—Crusts, scales and rawness, especially about mouth, nose, arms, and vulva with sticking, pricking or burning sensations, *worse* at night, from touch, washing and on rising.

Comedo.—Black pores on face, with scaly surface, sticking, burning *sensations* and other symptoms of nitric acid.

Acne simplex and indurata.—Papules on face (*worse* on forehead near hair line and on chin), with hyperæmia or pigmentary areola; small and large pustules which become indurated, especially on chin, neck and shoulders; painful to touch, with sticking sensations until pus forms at apex; in brunettes who are depressed and irritable but easily excited.

Alopecia prematura.—Falling of hair after humid or scaly eruptions, or with nocturnal headache deep in bones with band-like tension; *relieved* by tight pressure and warmth. Falling of hair from pubic region.

Lentigo, Chloasma.—Dark freckles on face; in thin, dark complexioned subjects; after abuse of mercury; yellow liver spots in middle or later life, with chronic constipation.

Erythema caloricum (chilblains).—Redness of toes and fingers, with sensation of heat and sticking as if they had been frozen; *worse* from touch and pressure, *better* from washing with cold water.

Eczema about the mouth or nose (occasionally on the bearded parts of the face), the hands, arms, labia, penis or perineum may call for nitric acid, especially if the general symptoms of this drug are present, and the splinter-like *sensations* aggravated by touch are felt in or adjacent to the lesions. The form of predominating eruption is not important; papular, vesicular, pustular, crusted, fissured or scaly types yield equally to this indicated remedy. A strong urinous odor of the urine or an acid or urinous odor of the perspiration may suggest this drug.

Carbuncle.—Splinter-like and burning *sensations* in or about the affected area, *worse* from touch; in the scrofulous or those who have used mercury freely; emaciation, weakness, mental irritability and depression. Especially when situated near the mucous outlets or when recurrent.

Syphilis.—Primary sore, clean in appearance, with sharp stitching sensations in or near lesions; *secondary syphilides* of any form which do not yield to mercury; lesions with broad areola and accompanied with unusual sensations in all parts of the body, emaciation and weakness; whitish ulcerating lesions of the mucous membrane, with offensive odor of secretions and painful fissures at muco-cutaneous outlets; ill conditioned ulcers of the skin, with irregular edges which bleed easily; vegetating lesions especially on genitals, anus or face; band-like constriction and headache as if in the bones. Sensitiveness and *splinter-like* pains over malar or other bones, with threatened caries; many symptoms *worse* from exposure of skin to air or wet, at night, *better* from gentle rubbing and warmth.

Leprosy.—Nitric acid should be studied in cases of macular or tubercular leprosy when some of its characteristics are observed.

Yaws.—Various sized dermoid growths with dark areola becoming fungoid in character and later tending to ulcerate, accompanied with swollen glands, pains in extremities, fever and perspirations; especially in cases involving the mucous membrane or most marked at muco-cutaneous outlets.

Keloid.—Nitric acid may be thought of in keloid when the growth is confined to the mid-sternal region.

Nævus pigmentosus.—Acquired forms, especially warty type; on face, neck or hands and tending to multiply persistently. Bleeding warts.

Nitric acid should be given in aqueous solution and seldom above the sixth decimal attenuation.

NUX MOSCHATA

Nutmeg exerts an inhibitory influence on the heart and on the normal secretions and excretions and causes various nervo-mental disturbances. The skin is rendered cold, dry and pale, and if tinged with red soon fades again.

Anidrosis.—Absence of perspiration with coolness of the surface, dry mouth, throat or other mucous surfaces, and sensitiveness to cool moist air; in hysterical subjects of changeable disposition who are subject to absent-mindedness, bloating of the abdomen, aphonia. suppression of the menses, etc. In pregnant women.

Acne indurata.—Pustules on the face, with wide areola, tension and burning; other parts cold and dry; in hysterical subjects with characteristic symptoms.

Nux moschata should be given in low attenuation, first or second decimal.

NUX VOMICA

This drug irritates the spinal cord and its counter parts in the brain, and thereby causes a large variety of reflex motor and sensory disorders. The nutritive functions are especially disturbed or perverted, and consecutive malnutrition and vasomotor reflexes of various sorts may be added to the earlier symptoms. In the cutaneous sphere sweat disorders, circumscribed hyperæmia, follicular papules and large pustules are the chief objective features. These are usually *located* on the face, neck, chest, inner forearms, sides of the fingers, thighs and knees. *Sensations* are not constant; burning, itching, tension, soreness and gnawing are the most common. When present they are usually *worse* from the first effect of warmth of bed or room, in the forenoon, after eating, and on the extremities; are *better* in the afternoon, and temporarily from scratching.

Acne simplex or indurata.—Papules, tubercles and pustules on face, the larger surrounded by redness, painful in forehead, *worse* forehead, temples and chin; in brunettes of sedentary habits, thin, irritable, subject to dyspepsia, headache, constipation, insomnia, etc., characteristic of nux vomica.

Chromidrosis of the trunk associated with gastric disorders.

Lichen planus, when the eruption is located on the inner surface of the forearms, thighs, or sides of the body, and attended with neurotic symptoms resembling the characteristics of nux vomica, may be cured with this drug.

Rosacea.—Associated with indigestion, with craving for stimulants, constipation; in persons of sedentary habits with symptoms *worse* in the morning after eating, *better* in afternoon and evening. *Sensations* of tension and soreness in affected parts relieved by scratching.

Nux vomica may be used in a variety of attenuations. While the sixth decimal is often effective, not infrequently a lower attenuation is required.

OLEANDER

Oleander produces narcotic irritant and paralyzing effects through the cerebro-spinal system, which are manifested by a bursting or throbbing frontal headache, mental weakness or confusion, tendency to convulsions, gastric disturbances, and cutaneous paræsthesia with extreme sensitiveness, and an especial elective affinity for the skin of the scalp and contiguous non-hairy parts. *Sensations* may exist alone, precede or attend the formation of scales, an outbreak of papules, vesicles, or pustules on the scalp or face, or pruritic sensations may be felt here and there without eruptions. The most characteristic sensation is a biting itching, though gnawing, sticking, burning, smarting and soreness are attributed to this drug. *Aggravations* occur from undressing, friction of the

clothes and from rest. Temporary *relief* follows from scratching or the sensation may be changed to smarting or rawness thereby.

Eczema of the scalp (occiput), behind the ears, on the cheeks, or forehead with pruritic sensation and sensitiveness out of proportion to the extent of serous exudation, scaliness, or the number of papules or pustules, especially if biting, itching sensations are felt in non-eruptive regions and are aggravated by frictions of the clothing, may be cured with oleander.

Pruritus.—Particularly of the scalp with biting, itching or crawling sensations, *worse* at night; of legs or other covered parts, *worse* from friction of the clothes, especially while undressing. Associated with indigestion, pulsations in the stomach, a throbbing, occipito-frontal headache and sensitiveness of the scalp.

The sixth decimal attenuation is generally employed.

OPIUM (MORPHIA)

Opium acts on the whole nervous system causing depression of the conscious and automatic functions and excitation of subconscious or inco-ordinate action, manifested by various sensory and motor disturbances. In the cutaneous sphere pruritic *sensations*, congestion, circumscribed inflammation or disturbances of nutrition may appear varying in nature and degree according to the susceptibility of the subject.

Pruritus.—In old people with coldness of the parts, mental dullness, twitching of the flexor muscles, constipation, itching, biting, crawling, etc.; *sensations* (especially of the head, *face*, genitals or extremities), excited or *worse* from fright, anger and at night.

Urticaria.—In children or old people following fright, anger or use of stimulants. At night when half awake, must uncover (though skin is cool to touch) the bed feels so hot. During dentition attended with drowsiness, twitching of flexors, constipation and cool perspirations.

Scleroderma.—Sweating, coldness, swelling, purplish, bluish or violet redness of affected parts in early stages; pale, shriveled, tawny, leathery and contracted appearance in later stages, with mental dullness, drowsiness, muscular spasms and unsteadiness, and unrefreshing sleep. Most symptoms *worse* at night from heat, stimulants and while perspiring.

Atrophia maculosa et striata.—After fevers or other systemic disease. Bluish, purplish or brownish spots chiefly on face, neck or limbs. Associated with sensitiveness to warmth yet lack of heat in the skin, mental and physical dullness, constipation, etc.

The remedial effects of opium on the skin may be usually obtained from the sixth decimal; occasionally a lower attenuation is required.

OSMIUM

This metal produces an irritant effect on the mucous membranes, disturbs the nutrition and functions of the eyes and skin in a limited but characteristic way. It increases and gives odor to local perspiration, causes adhesions of the nail fold, and gives rise to macular, nodular, papular, vesicular and crusted *lesions*. These are usually *located* on the back of hands, face, arms, neck, trunk and legs, with a tendency of eruptions to appear on the lower half of the body as they subside on the upper parts. *Sensations* of crawling, itching, soreness and burning may be felt, and become *worse* on exposure of the surface while dressing and undressing morning and night.

Bromidrosis.—Sweat in axilla smelling of garlic, *worse* evening and night. With concomitant catarrhal affections.

Pterygium.—Fold remains attached to growing nail, *worse* right middle finger.

This remedy may be used in the sixth decimal.

PARIS QUADRIFOLIA

This plant acts evidently on the peripheral centres of innervation causing pronounced neuralgic pains, pruritic sensations and a sparse eruption of vesicles. *General* indications for this drug are great sensitiveness to offensive odors, imaginary foul smells; parts involved feel very large or heavy. The favorite *locations* of sensory disturbances are the left side of face, neck, arm and thorax. *Sensations* are *worse* nearest the spine, evening and morning, on waking.

Herpes zoster.—Of the left side—facial, cervical, brachial or intercostal—with severe neuralgic, biting, sticking, burning pains *worse* nearest central origin of nerves morning, evening, from touch and friction. Eruptions slow to appear, and pains continue after eruption has appeared; great weight on back of neck and general sense of increase in size.

Paris quad. acts well in the first decimal attenuation.

PETROLEUM

While the action of petroleum is not well understood, it is known to derange the functions and disturb the nutrition of the tissues of the mucous membrane and the skin, and to set up a train of systemic disturbances often characterized by headache, irritability, vertigo, weakness, nausea, dyspepsia, etc., which usually become *worse* from passive motion.

It acts on the sweat and oil glands of the skin, causing disturbance in their functions and sometimes consecutive inflammation and atrophic changes. The

favorite locations for disturbances are the occiput, behind the ears, on the hands, fingers, feet and toes. *Sensations* of burning, sticking, itching, cutting, soreness or tickling often attend the onset and course of the disorder. These are likely to be *worse* morning and evening, from pressure of clothes, scratching and in cold weather.

Hyperidrosis or bromidrosis.—Sweat on feet in cold weather, with burning, sticking or soreness, *worse* in cold weather. Has cured fetid perspiration of feet when indicated by local or general symptoms.

Seborrhœic dermatitis.—Eruption between toes, suitable to cases which have originated from sweating of the feet. Ends of toes are apt to be rough at outer line of contact with adjacent toes.

Comedo.—Orifice of follicle enlarged and containing dry and friable epithelium, which cannot be squeezed out; nodular infiltration about follicles which contain hair. Adapted to cases which originated from local applications to the skin; in the dark complexioned with coarse hair.

Acne.—Pustules with white tips on nose and other regions of face, follicular swellings and many comedones difficult to express. Unhealthy appearance of the skin of the affected region, easily suppurating.

Alopecia.—Falling of hair in persons subject to occipital headache, occasional vertigo or dyspepsia characteristic of petroleum.

Conglomerate suppurative perifolliculitis.—Patches of honeycombed groups of follicles, elevated, thick and inelastic; in some cases follicular abscess.

Subacute and chronic eczema, moist, crusted, dry, or fissured, not infrequently show indications for petroleum. When seated at the occiput, back of the ears, on the scrotum or vulva, opposing surfaces of the thighs, or between the fingers and toes, an irritating serous exudation gives the parts a raw or excoriated appearance, and the discharge may be profuse after scratching, accompanied with excessive burning or smarting. Occasionally the discharge has a fetid odor from admixture of sweat. **Eczema intertrigo** in infants or stout adults may call for this drug. On the hands or arms the eruption is apt to alternate from moist oozing of the surface to rather thick crusting, while on or near the tip of the fingers the skin is most often rough, thickened or fissured.

Psoriasis of the hands has been cured with petroleum. It is indicated here, on the scalp, arms, and possibly elsewhere when the skin is unusually sensitive, the lesions are easily irritated, inflamed or fissured, and then burn or sting. Aversion to the open air and *aggravations* in cold weather are important indications, while stiffness or cracking in neighboring joints are suggestive concomitants.

Syphilis.—Secondary syphilides, moist papules on the genito-anal region, especially on the scrotum, also between toes, easily irritated by friction which excites moderate disturbances of sensation; scaly, fissured lesions on hands, particularly at finger tips; loss of hair, headache, vertigo, weakness, etc. General *aggravations* night and morning, from riding and in cool weather.

Leprosy.—Premonitory headache, weakness, bone pains, dyspepsia, general

or local hyperæsthesia and sensitiveness to cold; yellowish, brownish or reddish macular or tubercular lesions with or without vesicles or bullæ, on face, trunk, legs or hands; stiffness in fingers, fissures and atrophic changes in tips; toes drawn sideways with *sensations* of constriction, pressure and drawing as if frozen; numbness of extremities, skin easily irritated; ulcers with deep edges; aversion to the open air.

Nævus pigmentosus.—Hypertrophic (elevated) moles may be sometimes cured with petroleum, locally or internally.

Lymphangioma.—Small celled growths in spots along lymphatics and veins; similar situated somewhat solid and sensitive lesions (*L. tuberosum multiplex*). Dread of open air and general hyperæsthesia of the surface on slight pressure.

Lupus erythematosus.—Active cases attended with signs of inflammation, especially on occiput, behind ears, on scalp or face; skin easily irritated by *local* applications or friction, sometimes cracks, and then is attended with burning, stinging, or itching sensations, *worse* from pressure, scratching and in cold weather.

Verruga.—On fingers or tips of, with pulsating, suppurating or sore *sensations* if irritated or exposed to cold. May be applied locally also in crude form.

Good effects from petroleum can usually be obtained from the third to sixth decimal attenuation.

PHOSPHORUS

This energetic element, introduced into the body, first stimulates the peripheral capillaries, then disorganizes the tissues and the blood, and finally, if long continued, may cause fatty or other degenerative changes in any tissue. The changes in the capillaries and in the blood predispose to hemorrhages from apparently slight causes and in the tissues to deep-seated inflammation or degeneration. On the skin it may give rise to nearly all forms of primary and secondary lesions according to the dose and susceptibility of the individual. Clinically it is comparatively useful in its uncombined state only in hemorrhagic affections or for eruptions which bleed easily, whatever their form, and for conditions apparently dependent on local or general defects of innervation and nutrition. *Location* is unimportant. *Sensory* disturbances vary widely from the anæsthetic to the moderate or extreme hyperæsthetic or paræsthetic. Among general symptoms are mental and physical prostration, heaviness of the whole body, sleepiness. *Aggravations* are apt to occur before midnight, during a thunder storm, and from lying on the left side or back.

Phosphorescent sweat, Bromidrosis.—Sweat luminous on forehead; phosphoric odor, garlicky odor, sulphurous odor.

Seborrhœa sicca.—Much dandruff, biting sensations, little itching; when general symptoms indicate phosphorus.

Alopecia areata.—Hair falls out, bald spots above ear, roots of hair dry, with or without dandruff, especially when there is soreness or bruised pain in head, made *worse* by pressure.

Lentigo, Chloasma.—Phosphorus is indicated for freckles or liver spots of the face, neck, hands or elsewhere when the pigmentations are made more apparent by marked paleness of the unaffected portions of the skin, *worse* from getting heated, sweating, constipation, at the menstrual period, in erotic females, in those subject to bleeding piles or other characteristic hemorrhages, and especially when the general symptoms of emaciation, weakness, etc., are characteristic of this drug.

Urticaria pigmentosa.—Elevated crimson wheals, darker in centre or becoming brownish and persistent; in tall, slender subjects who take cold easily; general symptoms *worse* during a thunder storm.

Pellagra, Acrodynia.—Emaciation, loss of power in the legs, vertigo; macular, papular, vesicular or pigmentary lesions attended with burning sensations, *worse* before midnight.

Purpura.—Petechial spots, generally distributed, or larger bluish spots on the legs. In tall, slender subjects with gastro-intestinal or hepatic disturbances.

Dermatitis herpetiformis.—Grouped vesicles without much areola; physical prostration, heaviness, sleepiness.

Pemphigus.—Vesicles or blebs without areola generally distributed attended with moderate sensations of heat, burning, soreness or tension. In subjects suffering from debility, overwork, shock or other nerve exhaustion. Early stage of *P. vegetans* or *P. foliaceus* when general symptoms correspond to phosphorus.

Favus, Tinea tonsurans.—Later stage for threatened baldness in round or oval spots; soreness or bruised sensations in scalp *worse* from pressure; physical and mental depression or apathy.

Ecthymatous ulcers, Syphilis.—Specific or non-specific ulcers which have developed from small sores, bleed easily or show raw bleeding base on removal of crusts, especially when located on buttocks or thighs; crusts blacker at centre surrounded by deep red areola and unusually sore or sensitive to touch.

Sometimes useful in *secondary syphilides* in tall, slender, weak, or scrofulous subjects, with painful heaviness of whole body and general or special *aggravations* before midnight; scaly lesions of palms and soles, extensor surfaces or about joints, with red or bleeding points, on forcible removal of scales. Syphilitic periostitis, caries or exostosis, especially of long bones, with great heaviness in all the parts and sensitiveness of affected area. Pains *worse* at night and from hot applications.

Leprosy.—Yellowish, reddish or brownish macular spots, patches paler in the centre and anæsthetic or paræsthetic, deeper color and hyper-æsthetic at periphery; intercurrent hemorrhagic bullæ; tubercular lesions which soften and discharge a yellowish-brown, bloody or sticky fluid; tall, slender, emaciated, weak victims; with generalized sensations of pricking and numbness, *worse* at night and when lying on back or left side.

Tuberculosis verrucosa, Verruca.—Tuberculous or ordinary warts, subject at times to painful, sore or itching *sensations*, show a tendency to bleed, suppurate or cause inflammation of adjacent skin; thin, poorly nourished, scrofulous subjects with pale yellowish complexion.

Lymphangioma.—Associated with tuberculous affections or arising primarily from derangements of the capillary circulation; warty-like growths containing vesicles with thin transparent or milky fluid, sometimes purplish from extravasations of blood, or dilated capillaries show here and there; dilated vessels (lymphangiectasis), or lesions rupture and discharge clear or milky fluid; associated with general conditions calling for phosphorus.

Mycosis fungoides, Verruga.—Variously shaped growths, some of which become warty or fungoid in character, bleed easily, ulcerate and are attended in early stage with some degree of burning, itching or other painful sensations, generally *worse* before midnight, etc. Especially when constitutional symptoms indicate phosphorus, this drug ought to prove helpful in these rare affections.

Phosphorus should be given in the sixth decimal for most cutaneous affections, sometimes lower and rarely higher.

PHOSPHORICUM ACIDUM

This acid produces an apathetic type of weakness, such as might arise from lack of sufficient nutritive matter to meet the demands of the growing body or the loss from undue waste. Metabolism is defective, and the sexual, digestive, osseous and cutaneous systems especially suffer thereby. With a disinclination for all exertion there is a certain contradictory disposition to move about. The swollen glands may be painless, but bone pains are pronounced and of a burning, tearing, gnawing character. On the skin, macular, papular, tubercular, vesicular, pustular or ulcerative *lesions* may appear, with general formication, but rarely with painful or persistent *sensations* in or near the eruption. The more common *locations* are the face, neck, arms, hands and legs. *Symptoms* are usually *worse* at night, at rest, from cold and touch, and are *better* from motion and warmth.

Acne simplex and indurata.—Pale face, papules, tubercles and pustules on face and shoulders, *worse* on forehead, nose and about mouth, sensitive only to pressure; particularly in overgrown boys or girls with early sexual propensities; or in older persons suffering from over-sexual indulgence or abuse.

Alopecia and canities.—Falling of hair; "hair becomes gray early and falls out, the effects of mental strain;" headache *worse* in vertex, soreness of scalp only on touch; in early middle life with symptoms corresponding to phosphoric acid.

Onychia.—Stitches in thumb extending under nail; nail grows into flesh of toes; sticking and jerking sensations on touch; numbness or falling asleep of fingers and toes in cases with characteristic debility.

Rosacea.—Associated with chronic intestinal disorders, anæmia, chlorosis, sexual excitement or abuse, mental and physical apathy; fornication and sometimes deep burning sensations. Symptoms *worse* from rest; *better* from warmth and motion.

Pompholyx.—Debilitated subjects, vesicles on balls of toes, soles and fingers, with deep burning, tension and soreness, *worse* from cold and touch, *better* from warmth.

Furuncle.—Boils on face, neck, thigh or in axillæ; stinging, burning pains, sensitive to touch and soreness of unaffected skin; weak, apathetic subjects, particularly overgrown boys or girls with early sexual propensities, or older persons suffering from over sexual indulgence or abuse.

Verruca.—Large, fleshy, jagged, moist or bleeding warts about mucous orifices, at times subject to burning or stinging sensations, *worse* from cold. *better* from warmth; in young people who have grown up rapidly, seem debilitated thereby and show a distaste for mental activity.

The lower attenuations, second to fourth decimal, give the best and quickest results.

PHYTOLACCA

This drug excites inflammation of the glands (particularly of throat, breast and kidneys), fibrous, mucous and cutaneous tissues, producing effects somewhat like those of *scrofula*, syphilis, malignant affections; from mercury and kali iodide, with *general* symptoms of prostration and lithæmia; *local sensations* of painful soreness, burning, shooting or tension of affected parts which may extend or radiate to near or distant regions. Symptoms are *worse* at night and from damp weather, *better* often from lying down and on going out of doors. Under its influence the skin may become dry, shrunken, pale or lead-colored and macular, squamous, papular, or pustular *lesions* appear. A particular *feature* of phytolacca is that more generalized eruptions appear first upon the head and extend downwards. Clinically it is most useful in the early stages of cutaneous disease to abort or modify their natural course.

Psoriasis when it begins first on the scalp and spreads downward over the body, especially if there is a history of *scrofula*, remote syphilis or excessive use of the iodide of potash.

Tinea tonsurans, T. barbæ.—Scaly spots first on scalp and extending later to face or neck, with *sensations* of general or local soreness.

Furuncle, Carbuncle.—In the lithæmic or debilitated; slow to develop, with burning tense pains. *worse* at night; associated with swelling of lymph glands and general paleness of the skin.

Lupus vulgaris, Scrofuloderma.—Primary lesions beginning on face or neck and slowly extending in a downward direction; with swollen glands and leaden hue of the skin; aching or soreness in the muscles or bones at night or in damp weather.

Syphilis.—Secondary or tertiary syphilide in pale, lithæmic or debilitated subjects; beginning on the head or upper trunk and spreading downwards; associated with mucous patches or ulcers of the mucous membrane and swollen glands; periostitis or nodes especially of long bones with nocturnal pains; with rheumatic condition of joints, muscles or fascia attended with shifting pains; *aggravations* at night, from damp weather, and general *relief* from lying down.

Paget's disease.—With pains radiating from the nipple; lameness or painful *sensation* of fluid flowing into the breast; swelling or soreness of glands and pale cachectic hue of the skin; sometimes in ulcerating stage when base of ulcer looks fatty and edges are sharp cut; *aggravations* first part of night, from damp weather, temporary *relief* from bathing parts with cold water or cooling solution and in recumbent position.

Carcinoma.—Inoperable cases of primary or recurrent cancer attended with pains radiating from affected region, swollen glands, early cachexia and prostration; punched out looking ulcer with lardaceous base; pains or conditions *worse* first half of night, in damp weather and from warmth of part; some *relief* or comfort from cold bathing of affected region.

Phytolacca probably always exerts its best effect in low attenuations, first to third decimal.

PICRICUM ACIDUM

In moderate toxic doses picric acid alters the blood, deranges innervation by its action on the nerve centres, and lessens elimination by inflaming the kidneys. *General* secondary effects (even from small doses) are weariness, fatigue from slight mental or physical effort, impaired will power and indifference. In the skin it may cause changes in color of face to a yellowish hue and the appearance of papulo-pustular, vesiculo-pustular or pustular *lesions*, accompanied with stinging, burning, itching, tense or painful *sensations*, *worse* from pressure, motion, and at night; *better* from rest and cold applications.

Impetigo contagiosa.—On the face with sero-purulent exudation which dries into rather transparent crusts; especially in debilitated children who tire easily, feel *better* while at rest and local pains from cool applications.

Furuncle, Carbuncle.—Boils on face, neck or in the ears; carbuncles on back of neck or face; in neurasthenic or hysterical subjects who are exhausted by moderate effort; associated with periodic menstrual or sexual neurasthenia; with occipital headache, *worse* from trying to think, *relieved* by cool applications or cool air; *sensations worse* from motion, pressure and at night, sometimes *better* from rest.

Picric acid can be employed in the sixth decimal for most cases.

POPULUS CANDICANS

This drug acting on the peripheral nerves of sensation produces well-marked anæsthetic and paræsthetic disturbances.

Anæsthesia.—*Worse* over back, abdomen, finger ends, mornings and before menses; associated with rheumatic pains; talkative; apprehensive about recovery.

Pruritus.—Surface harsh, dry and cool with heat, burning or stinging below the surface as if an eruption was about to appear; *better* from hot applications; loquacity; periodic attacks.

Perforating ulcer of foot.—In the early stages when coldness and anæsthesia of the part are pronounced.

Populus cand. may be administered in the second or third decimal attenuation.

PSORINUM

This product of disease when introduced in the human body deranges the secretions and devitalizes the tissues of the skin to a degree which lessens its resistance to morbid processes, irritates the lymphatics, depresses the functions of other organs, and induces general debility and mental depression and fretfulness.

The skin *lesions* are unhealthy in type, and both the physiological and pathological secretions are usually foul. Vesicles, pustules and crusts predominate, though sometimes situated on a scaly area or about the border of a scaly patch. The *location* of eruptions may be general or limited to the face, hands, arms, legs, chest or back. *Sensations* of itching or crawling are pronounced, sometimes so intolerable that the lesions are scratched until they bleed. The sensations are *worse* from warmth of bed or exercise, often in the open air, and are sometimes *better* in the morning, while at rest and indoors.

Chronic eczema of various types which do not yield to indicated treatment may respond to this remedy. It is especially adapted to a persistent and offensive form of eruption apparently due to an ill-defined diathesis (psora). Such patients generally show a dirty or yellowish hue of the skin, complain of sudden and offensive perspirations and constantly worry about themselves. They are always *worse* from the warmth of bed as in genuine scabies. Occasionally such chronic eczemas are characterized by a recurrence with the return of cold weather until they are permanently cured. In prolonged cases the lymphatic glands may remain persistently swollen.

Scabies.—Debilitated, fretful subjects; neglected cases with offensive odor of secretions and dirty complexion; scrofulous types with pustular lesions here and there which persist under treatment; itching which induces tearing of

the skin with the finger nails; *aggravations* from warmth of bed before midnight.

Pediculosis.—Associated with yellowish or unhealthy appearance of the skin, disagreeable odor of the physiological secretions, swollen glands or other signs of scrofula, etc. *Sensations* marked and *worse* from warmth of bed. Helps to restore normal resistance of the skin.

Ecthyma, Tuberculosis orificialis, Scrofuloderma.—Offensive odor of all secretions even after cleansing parts; sallow, sickly, delicate, irritable subjects; ulcers with thin ichorous discharge oozing for hours continuously; symptoms generally *worse* in first half of night, from warmth, out of doors, *better* in morning and from rest.

Verruca.—Groups of smooth warts on fingers of left hand, chin or about mouth, sometimes moist and itching, *worse* from warmth, may be helped to disappear with psorinum internally and locally, especially if the constitutional conditions indicate the remedy.

Psorinum should always be administered in the higher attenuations, sixth to thirtieth decimal.

PULSATILLA

The polycryst is rarely indicated in affections of the skin not dependent in some measure on disturbances of the mucous or serous membranes, generative organs, etc. It should be studied in its relation to disposition and in all its various characteristics when certain cutaneous symptoms suggest it as a remedy.

The form of *lesions* and their *location* is not important. Erythema, papules, vesicles and pustules are most common, and the face shoulders, chest, back, neck and groins the more frequent sites. *Sensations* of burning, itching, biting, pulsating, prickling and sticking may be felt. The really important indications are the marked *aggravations* from warmth of bed, while in a warm room, from lying on the side, from eating rich, fatty food or fruit; and the equally marked *relief* from the cool open air, a cool room, and from lying on the back.

Hyperidrosis.—One-sided sweating at night; on feet every morning in bed.

Acne.—Papules and pustules on forehead, face, chest, shoulders and back, with occasional throbbing, pricking, etc., *worse* in a warm room; in lachrymose young women fond of rich food, with characteristic dyspepsia, delayed menstruation or other pulsatilla conditions.

Eczema in children and young adults sometimes presents underlying conditions similar to the effects of pulsatilla; rarely the typical modalities named above have been observed and prompt cures effected with this drug. Such cases are acute or subacute but never chronic. Occasionally they have a tendency as one area improves to appear suddenly in another region corresponding to the shifting tendency of pulsatilla.

No single attenuation of *pulsatilla* can be named as the best. The writer selects the third decimal for new cases.

RANUNCULUS BULBOSUS

This drug acts selectively on the peripheral nerves and gives rise to abnormal sensations which have been described as neuralgic, rheumatic or myalgic in character. These may be accompanied with herpetic *eruptions* or a superficial spreading inflammation of the skin. Besides the neuralgic varieties of pain, burning, itching, stinging, crawling or pricking *sensations* may be felt in or about the affected area. *Locations* of cutaneous symptoms are along the lines of superficial nerves of the hands, arms, face and trunk. *Aggravations* occur from changes of temperature and weather, from scratching, and in the evening.

Neurotic eczema with vesicular and crusted lesions, unilateral in distribution (especially of right side), attended with unusually severe pains or burning, itching, intolerant of scratching and *worse* from changes of atmospheric temperature, may be benefited by the action of *ranunculus*.

Dermatitis repens characterized usually by a one-sided spreading type of inflammation with abrupt borders and serous discharge, indicating a probable involvement of the cutaneous nerves, may in some cases be met by similar symptoms and conditions in the pathogenesis of *ranunculus*, the ulcerations from which are described as "spreading with eroded sharp borders."

Herpes zoster.—Especially affecting the ophthalmic branch of the fifth nerve with intense ciliary pains, iritis, etc. Violent neuralgia of intercostal or other nerves with eruption of transparent bluish, elevated vesicles tending to assume oval groups, or intense burning, stinging or pricking sensation during attack and occasional neuralgic pains, *worse* from changes of temperature or weather, and in the evening.

Dermatitis herpetiformis.—Bluish vesicles crowded together in oval groups, contents changing to dark yellow, some rupture and form spreading superficial ulcers. Eruption preceded or attended with intense burning, itching, stinging, pricking or sharp pains, preventing rest night or day; most symptoms *worse* from changes of weather and in the evening.

Pompholyx.—With unusually severe pains and tendency of eruption to spread; *sensations worse* in the evening.

Ranunculus produces its best effects on the skin in the third to sixth decimal attenuation, depending on the susceptibility to its influence.

RHODODENDRON

Like *pulsatilla*, this drug is rarely indicated in the skin disorders not connected with other conditions, particularly arthritic and rheumatic affections. *worse* before a storm, in cold, damp weather, while at rest, mornings. In a limited way it deranges perspiration and causes a sparse outbreak of macular, papular and pustular *lesions* with *sensations* of burning, pricking and tension.

Hyperidrosis and bromidrosis.—Sweat on hands, *worse* at tips of fingers, at night; fetid in axilla, smelling of spice, *worse* mornings.

Acne.—Pustules on forehead, shoulders and back; in rheumatic or neuralgic subjects with typical modalities.

Rhododendron should always be given in a low attenuation, first to third decimal.

RHUS TOXICODENDRON

The susceptibility to poison oak or to poison ivy varies widely in different persons. It shows an affinity for the muscular, fibrous, sero-fibrous and glandular (epithelial) tissues, and through these it acts on the mucous membranes and most prominently on the skin. From the mildest irritant effect (erythema) may follow moderate or severe types of inflammation, characterized by serous exudations, oedema or infiltration of the cellular tissues. Profound secondary effects on the organs of animal life and which resemble the states observed in low fevers may result from large or continued doses.

The *general* characteristics of rhus are restlessness (with or without anxiety), debility—sometimes paralytic in feeling, *aggravations* of all symptoms from rest, exposure to cold and wet. on beginning to move, and temporary *relief* from longer motion.

On the skin nearly every form of inflammatory *lesion* may be produced by rhus. These eruptions, as a rule, tend to spread rather than to penetrate deeply into the tissues. Macules papules, *vesicles*, pustules, the consequent scales and crusts are the most common lesions and of these vesicles the most typical. The *localization* of eruptions may be general or show a preference for the face, extremities or genitals. *Sensations* of itching and burning are usually most pronounced, but tingling, smarting, stinging and tension are not uncommon. These are generally *worse* from local warmth, cold and wet weather, at night, after rest, from light scratching, and are sometimes *relieved* by local cold, dry weather, by moving, and by hard pressure or scratching.

Erythema multiforme, E. nodosum.—Erythematous spots on the face or extremities, tending to spread at the periphery and intensely congested or to vesiculate at the centre, with restlessness, burning, tingling, stinging, itching, tense or rheumatoid sensations, *worse* from rest, warm applications, wet and cold weather, light touch or scratching, and often *relieved* by cold applications,

motion and hard pressure. Early stages of *E. nodosum*, with hard bluish-red swellings, chills and fever, soreness and aching pains in extremities and characteristic modalities.

Erythema calorica (chilblains).—In rheumatic subjects, from exposure to cold and wet, with intolerable stinging, sticking, burning, itching, *better* from cold applications, rubbing, motion, and *worse* from rest and warmth.

Eczema calling for rhus is usually acute or subacute, rarely chronic, and is seldom uniform in type. Erythema. papules, vesicles, pustules, etc., mingling perhaps without order, but the signs of vesiculation are rarely absent, and the changes in the appearance of the surface unusually frequent and rapid. At one time the surface may be red, moist or raw, at another covered by thick yellowish or brownish crusts, or papular and dry, or again assume quickly a dark red swollen appearance resembling erysipelas. A tendency of the vesicles to become quickly purulent is a special indication for rhus. Itching is usually pronounced, especially when the hairy parts are involved. The secretions are nearly always acrid, irritating to the unaffected skin and often offensive to smell as crusts form. In persistent cases the lymphatic glands may become swollen and hard, and in chronic cases the affected skin changed to a leathery consistence and thickness, and subject to intercurrent attacks of active inflammation. In such cases the flexor surfaces of the joints of the extremities are commonly the sites of the disease.

Urticaria.—With considerable swelling of the skin, rheumatic pains. Lesions of variable size and shape, first appearing after midnight or after exposure to cold and wet. Burning itching, *relieved* by cold applications and by walking about. Chronic urticaria with characteristic modalities.

Purpura, P. hemorrhagica.—Brown spots most numerous on inner ankles, with swelling of skin. Rheumatoid pains and constant restlessness at beginning of attack. From exposure to wet and cold. *P. hemorrhagica* with tongue dry in centre, weak, variable pulse and great restlessness.

Peliosis rheumatica.—Following exposure to cold or wet, severe prodromal rheumatic pains in legs or arms, fever, dry tongue, symptoms *worse* from rest, *better* from repeated motion.

Rosacea.—In rheumatic subjects, tip of nose swollen, intensely red, painful to touch; soreness of inner nose, nosebleed when stooping. Burning, tense sensations *relieved* by cold applications. *Aggravations* from cold, wet weather.

Herpes zoster.—Caused by getting wet while heated. Pre-eruptive myalgic pains of one region, *worse* after rest or attended with great restlessness preventing sleep. Swelling with first redness of the skin, burning, stinging pains, *worse* from scratching. Vesicles tending to confluence are accompanied with unusual itching and persistent restlessness.

Dermatitis herpetiformis.—When caused or aggravated by wet and cold; in rheumatic subjects or when preceded by characteristic rheumatoid pains, itching of the skin, etc.; multiform eruption attended with intense itching, burning or pricking *sensations* and great restlessness. Symptoms and conditions *worse* from rest and *better* from motion.

Pemphigus.—Acute cases or early stage of chronic pemphigus vulgaris, especially when apparently caused by exposure to cold and dampness. Onset attended with fever, physical restlessness, prostration, aching pains and some pruritic sensations.

Scleroderma.—Symmetrical form, skin hard like leather; tension, aching, heaviness and stiffness in parts, *worse* after rest, before and during storms, from getting wet and from over-exercise. Especially adapted to cases following rheumatism, excited by exposures to cold and damp with general sensitiveness to cold.

Insect bites.—Inflammation from bites, with spreading infiltration and swelling of the skin, intense pruritic *sensations*, *worse* from warmth and rest, *relieved* by moving about; attended with restlessness and paralytic weakness.

Furuncle, Carbuncle.—In early stage before suppuration begins when there are tense tearing pains in and about the lesions, *worse* from warmth; general restlessness and prostration; erysipelatous looking areola.

Leprosy.—Tubercle-like swelling of the skin, sharply defined, of bright red color and hyperæsthetic; persistent thickening stiffness and hardness of the skin; aching of the extremities; restlessness, debility, sensitiveness to cold and wet; general *aggravations* from rest, at night, on beginning to move, temporary *amelioration* from moving about.

Erysipelas.—Well defined swelling and dusky redness of the face, with puffy, swollen eyelids, scattered vesicles; with itching, burning and tense *sensations*, *worse* from warm applications; triangular dryness of tongue with fever; bruised, lame, aching pains in limbs and back, *worse* at night and from rest temporary *relief* from change of position, pressure and cool applications.

Leucokeratosis buccalis.—Occasionally useful when there is a burning, smarting or conscious sensation of dryness or roughness of the affected surface and a frequent inclination to move the tongue about in the mouth; sensations *relieved* while eating and from increased flow of saliva.

The general indications and modalities of rhus are to be always kept in view in selecting it as a remedy. These are not likely to be present in large per cent. except in those who are susceptible to the action of this drug, hence they often respond to remedial doses even when the eruption is not strictly characteristic.

Rhus should never be administered to a patient for the first time lower than the sixth decimal, and the attenuation raised if any aggravation follows its use. Frequently the lower dilutions will be needed if the susceptibility to it is lacking or slight.

RUMEX CRISPUS

Yellow dock root causes an excessive irritability of the mucous membrane and the skin without evidences of primary inflammation.

On the skin this action is evidenced by the *sensations* of excessive itching, stinging, prickling or burning, especially on the *lower extremities*. Scratching

causes an eruption of papules, papulo-pustules, or wheals, and some relief of the sensations. The symptoms are *worse* from exposure of the skin to cool air, in undressing at night and on rising, and are *relieved* by warmth of bed and by scratching.

Papular or **papulo-pustular eczema** with discrete lesions which appear more abundantly after scratching, especially if situated on the posterior aspect of the lower extremities, may occasionally present the characteristic indications for rumex noted above. Such cases are almost always chronic in course and marked by exacerbations in cold weather, indicating a participation of the peripheral nerves in the etio-pathology. **Lichen simplex** formerly designated this type of eczema, and a strong resemblance to **prurigo** may be sometimes observed; excoriated papules and an ill-defined pigmentation are not uncommon.

Pruritus.—Of legs, *worse* on calves. Excessive itching or stinging, *worse* from cold, *better* from warmth and somewhat from scratching.

Urticaria, U. papulosa.—Chronic type, onset preceded by intense pruritus, and scratching causes eruption to appear. Sensations *increased* by uncovering and cold, *lessened* by warmth.

Prurigo.—Chiefly of legs, small papules or papulo-pustules increased by scratching. Pruritic *sensations* excited by cold, relieved by warmth.

The curative dose of rumex must be varied in different cases. Probably the sixth decimal is more frequently employed.

SABINA

Sabina is a general irritant with a special affinity for the female genital organs, the urinary and intestinal tracts, the joints, and in less degree for the skin. The odor of the drug has been detected in the exhalations from the skin, but it is probable that its action on the surface tissues is largely reflex, and that it is adapted as a remedy only to such conditions. Comedones, macular, papular, tubercular and pustular *lesions* have been noted; these were *located* almost exclusively on the face and genitals. *Sensations* of burning, pricking, stinging, stinging, soreness (on pressure), and itching are not usually marked, and may be confined to apex of lesions or hardly noticeable. Symptoms in general are *worse* in the open air, from motion, touch, and at night; *better* from warmth.

Comedo.—Comedones that can be easily pressed out in cheeks and about nose, in young women suffering from menstrual, urinary, intestinal, rheumatic or neuralgic affections, with symptoms indicating sabina.

Acne.—Pimples on cheeks and temples, with soreness, *worse* on touch; in association with comedones with similar concomitants; during pregnancy.

Sabina acts best on the skin in the second or third decimal, rarely higher.

SALICYLIC ACID

Salicylic acid and its salts act primarily on the vaso-motor centres and in susceptible subjects cause hyperæmic and exudative lesions of the skin, rise of temperature and sensible perspiration. These and other disturbances are apt to be attended with rheumatic pains in extremities, dullness, weakness and sometimes vertigo and ringing in the ears. Macular, papular, nodular and secondary vesicular *lesions* are most common, and are attended with moderate itching or burning sensations.

Erythema multiforme, E. nodosum.—Salicylic acid may be indicated when the eruption suddenly appears on the face or upper extremities, preceded or accompanied with sweating and some of the above-named symptoms; E. with secondary formation of vesicles in groups or rings (E. iris) or bullæ (E. bullosum). *E. nodosum* of the arms which develop rapidly will be generally relieved by salicylic acid.

The most prompt effect of salicylic acid may be generally obtained from the first or second decimal attenuation.

SARSAPARILLA

This drug deranges sensation and nutrition and produces symptoms resembling the specific poisons (syphilis and mercury) and other inflammatory affections of the mucous and cutaneous tissues without producing organic changes, except of a superficial nature. Its pains are often deep-seated and severe and are *worse* from dampness and at night. On the skin it has caused papular, nodular, vesicular, pustular and crusted *lesions*, generally *located*, but with a preference for the face, hands, arms, genitals and left side of trunk and hip. *Sensations* of pricking, itching, stinging, burning and soreness may be felt in greater or less degree, and are apt to be worse from 5 to 7 P.M. at night, from touch, change from warm to cold air, and for three days before the menses.

Acne.—Papules and pustules on face and neck; *worse* on nose, forehead and chin, before menstruation, from constipation, after sexual excitement, seminal emissions, etc. Concomitant urinary affections, with pain *after* urinating, are suggestive indications.

Alopecia prematura.—Falling out of hair, with sensitiveness of the scalp to touch, occipital headache; from late syphilis, abuse of mercury, etc.

Onychia (paronychia).—Inflammation like a run-around around nail of index finger; ulcerations around ends of fingers, with pain on pressure; cutting sensation under nails: chronic cases, especially when associated with soreness of the mouth (aphthæ, canker, etc.), or characteristic effects of sarsaparilla.

When well indicated sarsaparilla does well in a medium attenuation, sixth decimal; if no effect is obtained, a lower potency should be given.

SECALE

Ergot exercises a distinct influence on the cerebro-spinal nerves, and through the vaso-motor system produces characteristic chronic contractions of the muscular structures of the arteries, thus suspending the equilibrium of the circulation and resulting in coldness of the surface with a sense of internal heat which creates an *intolerance* to external warmth or covering. If the effect of ergot is continued the skin suffers from interference of nutrition, its functions from passive congestion, hemorrhages, induration, gangrene and secondary inflammations. The surface of the skin is usually dry, its susceptibility diminished and paræsthetic *sensations* of creeping, etc., in or under it are felt. Some *general* indications for ergot are debility, prostration, anxiety, a pale and sunken countenance, and emaciation, though the appetite and thirst may be excessive.

Sclerema and œdema neonatorum, both rare and fatal affections of the new born, and due to retarded circulation in the capillaries from one cause or another, represent conditions in some respects similar to the effects of ergot. Its action should be studied in such cases and if found indicated it would probably aid the cure of those amenable to treatment.

Dermatitis gangrenosa infantum, probably due to the toxic effects of specific bacteria, and in which simple lesions become hemorrhagic or gangrenous, thromboses occur in the neighboring capillaries and shallow or deep ulcers form singly or coalesce, furnish in some instances symptomatic as well as pathological indications for ergot. Attention should be always given to the general symptoms pointing to this remedy.

Anæsthesia, Paræsthesia.—Of extremities and face when surface is cool and there is great intolerance of warmth.

Purpura.—Large and small lesions; cool, dry skin with creeping sensations in or under affected parts; *intolerance* to covering or external heat; sense of *relief* from cool air; thin cachectic subjects or old people.

Pemphigus.—In the old or debilitated, internal fever with cool surface at onset; *dislike* to warmth; blisters with bloody contents or leaving gangrenous spots.

Symmetrical gangrene.—Diminished sensibility of the skin, bloodless, cool to touch, sometimes swollen. Ecchymoses and later symmetrical gangrenous spots. In the chlorotic or debilitated. *Aggravations* from warmth.

Ainhum.—Secale may be indicated in this peculiar affection, the etiology of which is obscure.

Ecthyma, Furuncle, Carbuncle.—In cachectic, debilitated or prematurely old subjects, with dry, cool, shrunken skin; intolerance of warmth from

covering and *aggravations* from warm applications; tendency to gangrenous changes of affected parts.

Anthrax.—Fever with coolness of the surface and intolerance to warmth; red spot with a purple or black centre, later bleb or vesicles with dark contents, dark red base and gangrenous appearance of lesion or adjacent skin; crawling, burning or itching *sensations, worse* from warm applications.

Leprosy.—Bullous or indurated lesions with anæsthesia of skin, especially of the extremities; probably useful in advanced stages when the skin is dry, shrunken and cool, fingers and toes atrophy and threaten to fall off and there is great *intolerance* to warmth, with sense of *relief* in the open air.

Secale acts well in a low attenuation, second or third decimal. In very typical cases the higher attenuations are sometimes most effective.

SELENIUM

This metal in suitable form seems capable of inducing a general neurasthenia, with partial emaciation and a tendency to neuralgic headaches, such as sometimes occur from exhausting disease or excesses. It has shown an affinity for the larynx, liver, male genital organs, and in a minor degree for the skin. An oily flux on the skin of the face and a few macular, papular, vesicular and pustular *lesions* have been recorded. *Sensation* and *location* are not characteristic.

Seborrhœa oleosa.—Fatty appearance of skin of face; in the debilitated from previous disease; associated with genito-urinary disorders, etc.

Comedo.—Comedones in association with an oily surface of the skin; dilated follicles plugged with mucous-like substance.

Acne simplex.—Pustules which continue to inflame after discharge or expression of contents; with seborrhœa oleosa and comedo, and like general conditions.

Alopecia prematura.—Hair falls out on combing; with seborrhœa oleosa of scalp; in persons subject to headache, *worse* from strong odors, acids, tea or exposure to the sun; in the neurasthenic, with sexual weakness or perversions.

Selenium should be given in the sixth decimal or higher, never lower.

SEPIA

This drug is believed to produce venous congestions, especially through the portal vessels. Whatever its mode of action general depression and torpidity, unhealthy secretions and enfeeblement of the vegetative functions follow, while the chief local effects are apparently expended on the mucous structures of the genito-urinary tract and on the skin.

The skin of the face has a pale yellowish or waxy hue, sometimes with a

deeper yellowish or brownish saddle-like arrangement across the nose and out upon the cheeks, or similar roundish or oval spots elsewhere about the face and on the trunk. Vesicles or papules may appear on the face, occiput, back of the ears, in the flexors of the joints of the extremities and on the hands; pustules and ulcers are less common in the same region, bullæ rarely form, become purulent, or exude a sticky fluid on rupture. *Sensations* of itching, stinging and burning are most characteristic, but simple soreness or even an absence of sensory disturbance is not unusual. Symptoms, as a rule are *worse* morning and evening, after eating, at the menstrual period, and are temporarily *better* from being in the open air, from light touch, and from cold bathing.

Sepia acts best on brunettes, especially women suffering from genito-urinary affections.

Hyperidrosis, Bromidrosis.—Sweat on feet, *worse* on toes in morning; intolerable smell, on feet; toes become sore, better from cold bathing, in debilitated subjects who are bilious, dyspeptic, dull, irritable and discontented.

Seborrhœic dermatitis.—Yellow saddle across upper part of cheeks and nose; red, scaly roughness on face, nose, forehead and scalp; "scaly eruption on the legs, or a dark, dusky redness of the skin;" in the torpid and depressed with sensitiveness of the skin to cold air.

Comedo.—Many black pores on face; with general indications for sepia.

Acne.—Papules and pustules on face and scapulæ, worse on chin and cheeks, with brownish areola; pustules on cheeks resembling chicken-pox, leave pits; with comedones, in young women, especially during pregnancy and the period of nursing.

Alopecia prematura.—Falling out of hair, with pain on touch as if roots of hair were sore; in persons subject to sour perspiration of the scalp. neuralgic headache—from occiput to the eye, *worse* morning and evening.

Lentigo.—Freckles which become more distinct or extend to covered parts after puberty. in young women with menstrual or uterine disorders: general depression and torpidity, pale or sallow tinge of lighter parts of skin.

Chloasma.—Sepia is sometimes useful when indicated by general symptoms corresponding to its pathogenesis, and when the exposed parts of the skin have a yellowish hue, with areas of deeper staining, and approach symmetry in distribution.

The general symptoms of such patients are apt to be *worse* at the beginning and end of day, when quiet, after sexual excess, and *better* out of doors.

Eczema in the flexures of the joints, at the occiput, behind the ears, on the face, either moist or dry and offensive may call for sepia. In such case indications for the drug are usually obtainable from some part of the mucous tracts; in women aggravations occur before and during menstruation, and cold hands and feet (from uterine reflex) is a common condition. Efforts to relieve itching by scratching often cause severe burning sensation in the skin.

Ichthyosis may be occasionally benefited by the action of sepia when there is an offensive odor of the affected skin and other indications for this remedy are found.

Rosacea.—Saddle-like, bluish or brownish distribution on nose and cheeks; papulo-pustules leaving pits. Yellowish or waxy hue of non-eruptive skin associated with genito-urinary affections. Debility and general sensitiveness to cold air, while local symptoms are *relieved* in the open air.

Herpes.—About mouth with considerable redness, burning or itching sensations. Associated with indigestion, with empty feeling in stomach and abdomen, great desire for food, or associated with genito-urinary affections, etc.

Dermatitis herpetiformis.—Sepia should be studied as a remedy for the herpetic type of this disease when the cachexia, general symptoms and modalities correspond.

Tinea circinata, T. tonsurans.—Round, circular or oval, reddish and scaly spots; itching, *worse* morning and night; dark, sallow complexioned, feeble or torpid children with unhealthy or offensive secretions.

Syphilis.—Humid primary sore with great puffiness of the surrounding tissues; cachectic appearance of the skin with mental dullness, depression or apathy; *secondary* squamous syphilides exhibiting a tendency to assume circular outlines attended with the characteristic anæmia, waxy pallor, etc.

Leprosy.—Venous type, with dark skin becoming yellowish or waxy; mental and physical depression and torpidity; offensive secretions; puffiness of the skin with macular, tubercular, bullous or ulcerating lesions; hyperæsthetic and paræsthetic *sensations* or other symptoms, often *better* in the open air and from cold bathing.

Lupus erythematosus.—Reddish or yellowish, well-defined, saddle-like patch over nose and on cheeks; especially in dark skinned, cachectic females with hepatic, venous or pelvic disorders and *aggravations* at the menstrual period.

Verruca.—Large, hard seedy, flat or pedunculated warts on the face, neck, fingers or genito-anal regions of young, sallow brunettes, with a tendency to become pruritic or painful at the menstrual period, may be sometimes cured with sepia.

Epithelioma.—Ulcer on lip or prepuce with a broad base, considerable puffiness of contiguous parts and burning, sticking or pricking *sensations* may indicate sepia when the systemic conditions and individual type resemble this remedy.

Sepia should always be given in a high attenuation, rarely lower than the twelfth decimal.

SILICEA

Silicea disturbs the assimilation processes and slowly brings about defects of nutrition resembling some of the general and local manifestations of scrofula and rickets. The nervous system (probably from lack of nutrition) becomes irritable, sensitive, and is easily exhausted. Under such conditions there is little resistance of the tissues to suppurative and other morbid processes, and the surface structures are more likely to suffer from organic rather than

functional affections, usually chronic in their course. The secretions of the skin may be increased or diminished, become offensive to smell or set up inflammation.

Primary *lesions* may be macular, papular, tubercular, vesicular or pustular, but a tendency to morbid growths or swellings, or ulcers, may exist and slowly assume a malignant type. *Sensations* of stinging, sticking, itching or burning are commonly felt with the eruption. There may be also great sensitiveness, bruised sensation, or crawling in the unaffected portions of the skin. *Aggravations* occur in the daytime and evening but not at night, and *relief* is generally experienced from warm applications and warmth of room.

Hyperidrosis, Bromidrosis.—Sweat at night, with loss of appetite; on head only; *offensive* on feet, soles and between toes, become sore when walking; in irritable, sensitive persons, easily exhausted; putrid odor without sweat; sometimes useful for effects of suppression of habitual perspiration of feet.

Acne simplex or indurata.—Papules and pustules on face and chest, *worse* on forehead in cold weather. *better* in warm weather; in the scrofulous, rachitic, sensitive or emaciated from general innutrition.

Acne varioliformis.—Variola like pustules on forehead, occiput, or other parts of the body; when general symptoms correspond to silicea.

Atrophia unguis.—Nails gray, dirty, as if decayed, when cut scattering like powder; finger nails rough and yellow.

Reedy nails.—Nails gray, etc., splitting into layers when cut.

Onychia.—Sensations in tips of fingers as if suppurating; pain as if a panaritium would form; itching cutting beneath nail of toe, pain beneath nail and stitches in it; *relief* from warmth.

Dermatitis calorica (burns).—Silicea is serviceable in burns of the second and third degree when the tissues fail to heal, suppurate or furuncular lesions develop on or near the sites first affected, with general hyperæsthesia and *aggravations* by day.

Vaccination eruptions.—When maturation or suppuration becomes the predominant feature of these lesions, especially in sensitive scrofulous subjects who cannot bear light touch near the affected parts, sleep uneasily at night and are irritable by day and are easily exhausted, silicea often brings about a rapid cure.

Eczema occurring in the scrofulous or with other conditions of malnutrition, vesicular, vesiculo-pustular or crusted in form with offensive odor and pruritic sensations, worse during the day, may be frequently benefited by the action of silicea. Such eruptions are more often situated on the scalp, behind the ears, or on the arms, but *location* is not important in the presence of characteristic symptoms. In the less chronic cases offensive perspiration is a good indication, and in those of long duration enlargement or suppuration of the lymphatic glands is equally so.

Prurigo.—Predominance of large papulo-pustules resembling *lesions* of varioloid, sensitive to touch and attended with itching, stinging or sticking,

worse day and evening *better* from warm applications and warmth of room. Offensive odor of affected skin.

Rosacea.—Redness of cheeks with large, sensitive, variola-like pustules, indolent in course, attended with sticking or burning, *relieved* by heat.

Herpes zoster.—When lesions threaten to suppurate, are extremely sensitive and attended with burning, sticking pains, *worse* in daytime, *relieved* by warmth. Especially when pains continue after eruption begins to subside. Scrofulous subjects.

Dermatitis herpetiformis.—Chronic cases in scrofulous subjects, or with constitutional symptoms resembling effects of silicea. Multiform lesions, rounded groups or patches, preceded or attended with itching, burning or pricking sensations *worse* day and evening, *better* from warmth. Brownish pigmentations at sites of earlier lesions.

Vitiligo has improved under the action of this drug.

Impetigo contagiosa.—Vesico-pustular lesions on head or face, with offensive odor, especially in scrofulous or rickety children; pruritic sensations *worse* in daytime, from cold, *better* from warmth.

Ecthyma.—Pustular or other simple lesions very slowly changing to superficial ulcers, with little or no tendency to heal; unusual sensitiveness of nervous system and of affected parts to pressure; poorly nourished subjects with extremes of appetite.

Furuncle, Carbuncle.—Boils and carbuncles which tend to increase in size, become sensitive to touch and accompanied with general nervous erythema and other signs of mal-nutrition; sticking, burning and stinging sensations, *worse* from cold, *better* from warm applications and warmth of room. Late stage when reparative process is delayed.

Elephantiasis.—In early stages for inter-current erysipelatous attacks attended with stinging, burning pains, somewhat *relieved* by warm applications; neurotic sensitive subjects who suffer from a variable degree of pain in parts, *worse* on first lying down at night and from cold, *relieved* by warmth; associated with offensive perspirations.

Scrofuloderma.—In children with poor assimilation who crave meat, generally prefer cold food and are pale, nervous and irritable; swollen glands slowly tend to soften and suppurate and are usually sensitive; especially valuable for the papulo-pustular scrofulide on the face and arms which leave pit-like scars.

Syphilis.—Primary sore when actively inflamed, painful, depressed in centre and exuding a thin sanious fluid; poorly nourished, scrofulous individuals, frightened, anxious and gloomy about themselves and the effects of the disease; *secondary* syphilides, persistent in course, with tendency of lesions to ulcerate, attack the bones and produce offensive discharges; general *aggravations* in daytime and early part of night, from cold, some *relief* from warmth; especially in cases where free use of mercury has failed to give average benefit.

Leprosy.—Macular, tubercular and ulcerating lesions, associated with

offensive secretions nervous sensitiveness; general *aggravations* from cold during the day and *ameliorations* from warmth.

Silicea can be administered in medium or high attenuations. The sixth decimal is the best single attenuation. In malignant affections it may be necessary to use the first to third decimal, according to the effect observed.

SPIGELIA

Pink root acts almost exclusively through the peripheral nerves, causing marked disturbances of sensation, moderate derangement of nutrition and only slight inflammation. It shows an elective affinity for the fifth cranial nerve, the nerves of the trunk, especially the cardiac and intercostal branches. *Sensations* are neuralgic in type, with varying paræsthetic qualities (sticking, burning, boring, etc.) and tending to radiate in different directions. *Aggravations* occur from motion, cold, in stormy weather, in the evening; some *relief* is usually experienced from lying down, from warmth and pressure.

Atrophia unguis, White nails.—Nails brittle and many white spots in them, with sticking, tearing, burning, etc. *Sensations* in fingers or toes; in neuralgic or rheumatic subjects with characteristic pains and modalities.

Herpes zoster.—Pre-eruptive stage, involving branches of fifth nerve or the intercostal nerves, with pains radiating at times therefrom; burning, sticking and neuralgic pains; *worse* from motion, jarring, cold, and in the evening; *relieved* by rest, warmth and pressure. During eruptive stage, when radiating pains continue with characteristic modalities.

For the relief of its peculiar pains, spigelia does well in a comparatively high attenuation, the twelfth decimal, but when evidences of inflammation appear a lower attenuation such as the second or third decimal is more effective.

STAPHYSAGRIA

This substance acts chiefly on the mucous membranes of the digestive and genito-urinary tracts and upon the skin. The nervous system is affected by it to the extent of rendering the subject extremely sensitive to mental and physical impressions.

On the skin non-inflammatory *lesions*—papular and papillary growths may be excited, or chronic inflammatory papules, vesicles, pustules, and rarely ulceration may result from its action. Swelling of the neighboring lymphatic glands resembling scrofula or septic absorption may be noted. Secreting or crusted lesions are apt to give rise to a fetid or other offensive odor, and the sweat of other parts may be fetid also. The favorite *locations* are the face, scalp, neck, back of neck, ears, genitals and extremities. *Sensations* of itching, burning and crawling are felt in and about the affected skin. These are *worse*,

as a rule, in the evening and from touch, and are temporarily *relieved* by scratching or changed in character or location.

Bromidrosis.—Sweat of the odor of bad eggs; on feet and genitals at night; with sensitiveness of the skin to air; especially when associated with typical skin affections in other regions.

Alopecia prematura.—Hair falls out; with painful drawing sensations externally in places on head—*worse* on touch; itching, crawling, biting, *worse* on scratching; scales on scalp with fetid odor, or of sweat elsewhere; sensitiveness of scalp to cool air and to all impressions.

Eczema of the face, occiput, scalp, behind the ears, papulo-vesicular, pustular or crusted, will occasionally suggest this remedy. Great sensitiveness and unhealthy appearance of the parts even from external causes, such as pediculi, are further local indications for it. **Generalized papular eczema** (E. lichenoides) may present some of the above characteristic indications for this drug. The presence of spermatorrhœa from prostatic irritation, affections of the prostate alone, atonic disorders of the stomach and stomatitis are special associated indications. Mental and physical sensitiveness to all impressions are also important hints.

Keratosi pilari resembles objectively the goose-flesh appearance of the skin attributed to the action of staphysagria. The general symptomatology of this drug should be studied in the absence of other local indications.

Lichen scrofulosus may be symptomatically related to staphysagria. and should be compared with it in the study of a case of that disease.

Pediculosis capiti.—In conjunction with its local use in aggravated cases, particularly when pruritic *sensations* are felt on distant parts of the surface, neighboring glands are swollen and there is an offensive odor from the scalp.

Favus.—Yellowish crusts resting on a suppurating base or associated with pustular lesions of the scalp, an offensive odor of parts or secretions, loss of hair and swollen glands; sensitiveness to impressions and itching of non-affected skin; peevish and irritable subjects.

Tuberculosis cutis.—Lupus, tuberculous or scrofulous ulcers at or about the muco-cutaneous outlets, with fetid odor bleeding from the affected mucous membrane, burning or crawling sensations, *worse* in the evening and *relieved* by cleansing and redressing of parts.

Syphilis.—Secondary moist lesions or later excrescences of the skin or mucous membrane with offensive odor, considerable sensitiveness and consecutive affections of the bones; irritable, sensitive, impressionable subjects who fear the *worst* results; after abuse of mercury.

The sixth decimal is a preferable attenuation, but needs to be varied to a lower or occasionally to a higher preparation.

STILLINGIA

This drug acts on the fibrous tissues, periosteum, lymph glands, respiratory mucous membrane and sometimes consecutively on the skin, causing local inflammation characterized by free secretions. The spirits are depressed, apprehensive, and the pains deep-seated as if in the bones or muscles; *aggravations* occur in the afternoon, from motion and dampness.

Scrofuloderma.—Enlarged cervical glands which tend to soften and ulcerate; attended with deep-seated pains, malaise and gloominess, *worse* in damp weather; ulcerations with profuse discharge, especially when associated with scrofulous catarrh of the nose, involving the bones, attended with soreness and a free purulent discharge.

Syphilis.—Secondary eruption which tends to ulcerate, associated with ulcerations of the mouth or throat, specific catarrh, bone or muscular pains and enlarged glands. Later gummatous periosteal or bone syphilis attended with mental gloominess, malaise and nocturnal pains. Symptoms or conditions generally *worse* afternoons, from motion and damp air. Valuable for intercurrent use in unpromising cases.

Stillingia must be given in a low decimal attenuation or in tincture in most cases.

SULPHUR

Sulphur is a normal constituent of all protoplasm and its pathogenetic power is not limited to any tissue or organ, but it acts pre-eminently on the skin, and may stand in therapeutic relation to any skin affection due to systemic conditions which primarily arose from causes originating either from within or from without the body. The earlier changes are probably nutritive, especially within the domain of the venous capillaries, and render the local processes irresponsive to ordinary stimuli. A tendency to chronicity or recurrence is, therefore, a feature in many cases of disease requiring this remedy in occasional or more frequent doses. No other drug is so commonly employed in dermatological practice (often abused), and none will repay more a careful analysis of its characteristics.

On the skin sulphur is credited with producing all ordinary forms of primary and secondary *lesions* and many varieties of *sensory disturbance*. The more characteristic eruptions are papules, vesicles, pustules, scales and crusts. Itching sensations may occur with or without eruptions; sometimes the pruritus is voluptuous in character; often the lesions bleed easily and scratching is followed by soreness, burning or sticking sensations.

Aggravations occur from warmth, particularly at night in bed, morning on waking, from bathing, after dinner, and from alcoholic stimulants. Some *relief* is felt during the day, and temporarily from walking and scratching.

Location of disturbance is not important, but sites of selection are the occiput from ear to ear, in the flexures of the joints, on the legs and the genito-anal region. Associated capillary venous engorgement, local or extended, is always worthy of note.

Sulphur subjects are nearly always irritable, depressed, thin and weak, even when the desire for food is excessive and frequently gratified.

Hyperidrosis, Bromidrosis.—Sweat in axillæ; offensive in axillæ; of hands on palms; between fingers; about knees; *worse* at night or in morning on waking; with burning or heat of some other parts of body.

Seborrhœic dermatitis.—Circumscribed red and scaly patches on various parts; sebaceous glands filled with products of inflammation appear more plain; itching, burning, etc., *worse* from warmth and bathing, especially when situated on the occiput (ear to ear) or the genito-anal regions.

Comedo.—Comedones on nose; groups of black points like comedones on forehead, but cannot be squeezed out; dislike for bathing; impatient; good appetite, but thin.

Acne simplex or indurata.—Papules and pustules with red areola on face, neck and shoulders; in thin, irritable subjects with dilated veins or capillaries; with harsh, rough skin; *worse* from alcoholic stimulants; disagreeable odor from skin, but disinclination to bathe; in chronic cases, rebellious to treatment.

Alopecia prematura.—Hair falls out in morning on combing; with great dryness and soreness of the scalp; with neuralgic headache; *worse* at night, from warmth, and on stooping; after suppression of eruptions; in persons very subject to eruptions of the skin or eruption alternating with other disorders; with pale ill appearance of face and red lips—after acute diseases.

Onychauxis.—Nails thick, horny and misshapen: when general conditions or local eruptions indicate sulphur.

Onychitis.—Sticking in root of nail in evening; pain in nail and ball of toe; pain inside of nail, with great soreness; tearing above nail and drawing in root of nail in evening; semi-lunar furrow across nails near their roots; with or after chronic affections.

Chloasma.—Brownish spots on nose, *worse* in warm weather; in the poorly nourished who take abundant food, associated with capillary stasis or varicosis, persistent in course, with a general aversion to washing or bathing.

Erythema intertrigo.—Soreness in the folds of the skin, *worse* from warmth, bathing, stimulants, after eating and mornings; generally *better* from motion.

Erythema calorica (chilblains).—On fingers with swelling of skin, cool to touch, in persons of sluggish circulation and subject to sweating of the hands, intolerable itching and tingling from warmth, changing to burning and soreness if scratched.

Erythema multiforme.—Generalized red spots over body, persistent appearance of new lesions, *aggravation* from warmth of bed, in cases which fail to respond to indicated drugs.

Vaccination eruptions.—In cases which have assumed a chronic course without regard to form of lesion, due to low state of nutrition; in thin, round-shouldered children, who dislike to stand, walk, bathe or go out of doors.

Eczema of any form presenting the symptoms and modalities of sulphur will generally be benefited by its use. Commonly it is adapted to the papulo-vesicular, vesicular, vesiculo-pustular or squamous types which tend to pursue a chronic course. The most troublesome forms are found on the warmer regions of the skin, such as beneath the hair at the occiput, the folds, flexures of joints, arms and genitals. Papular eczema generalized over the extremities and trunk, if not too chronic, often yields readily to this remedy.

In **psoriasis** sulphur is often helpful as an intercurrent remedy when no response is apparent from another indicated drug. Occasionally it is indicated for frequent use by *aggravations* from warmth of bed, stimulants, a dislike for bathing, or rarely by some pronounced constitutional symptoms.

Keratosi palmaris et plantaris preceded or attended with evidences of venous engorgement of the skin, excessive sweating of the palms or soles or periodic burning sensations may be benefited by the administration of sulphur. It acts best in the early stages, but may be helpful intercurrently in cases of long duration.

Dermatalgia.—Sticking or burning pains, *worse* from warmth, at night, especially when excited by stimulants or bathing. Hot palms and soles.

Pruritus.—Of any region when *aggravations* occur at night from warmth of bed, bathing or washing, during rest, and some *relief* is obtained by moving about and from scratching; especially valuable for pruritus of vulva, perineum, anus or lower extremities.

Urticaria.—Chronic or recurrent cases, always *worse* at night in bed, relief by day. Dread of a bath.

Prurigo.—In weak, thin, round-shouldered subjects with good appetite; burning, itching or pricking sensations, *worse* from warmth and washing; *relieved* by motion and somewhat during daytime. Often useful as an intercurrent remedy.

Herpes.—About mouth and nose with itching and burning. Especially for the recurrent form in thin and weak subjects with excessive and frequent desire for food, sour eructations or other gastric discomfort after eating.

Atrophia maculosa et striata.—When there is capillary enlargement and constitutional conditions indicate sulphur.

Scabies.—Chronic, neglected or recurrent cases; voluptuous pruritus, with burning or soreness after scratching and always *worse* from warmth; weak, thin, irritable subjects with swollen glands.

Pediculosis.—Chronic or recurrent lousiness with great sensitiveness or soreness of the parts. To increase the resistance of the skin.

Favus, Tinea circinata, T. tonsurans, T. barbæ.—Chronic types in poorly nourished subjects with good appetites; itching always *worse* from warmth, after bathing from stimulants and *better* when moving about.

Furuncle.—Persistent appearance of boils, especially on dependent parts

or in the ear; stinging, smarting *sensations*, *worse* from warm, moist applications, somewhat *relieved* by moving about; thin, irritable subjects.

Syphilis.—Persistent secondary or tertiary lesions, finally leaving much pigmentation especially on extremities, with dilated veins and apparently due to venous stasis; aversion to bathing; poorly nourished subjects who take abundant food; glandular swelling; hard, dry, fissured patches on palms or soles which burn at night from warmth of bed and from washing.

Lymphangiomata.—Persistent tendency of dilated lymph vessels to extend or multiply may suggest a study of sulphur as a possible remedy, particularly if some of its characteristics are present.

Verruca, Clavus.—Painful or sensitive moist warts or corns associated with localized sweating of the region involved may be sometimes cured with sulphur internally and oftener in conjunction with its local application.

No one attenuation of sulphur can be named as the best. The twelfth decimal is good to begin with in a new case, but no one should give up a trial of this drug when indicated without changing to a lower or less often to a higher potency.

SULPHURICUM ACIDUM

Sulphuric acid induces a sort of cachexia manifested by emaciation, weakness, a tendency to venous transudations into the mucous membranes and the skin, and sluggish or low types of inflammation.

On the skin it may cause macular, papular, tubercular, pustular, ulcerative, scaly and crusted *lesions*, but it is especially related to lesions due to and attended with venous engorgement or hemorrhage at some part of their course. *Location* is not important, but the face, hands, extremities, buttocks and shoulders are the most common sites. Pruritic *sensations* may be prominent or absent. When present they are usually *worse* after midnight, from touch, and from taking warm food or drink.

Erythema multiforme, E. nodosum.—Sulphuric acid is indicated in cases which also involve the mucous membrane, when the lesions look dark and hemorrhagic at an early stage, occurring in middle or later life, with burning or corrosive soreness, *worse* from touch and latter part of night, especially in weak or cachectic subjects. *E. nodosum*—add to above in tibial region, with burning, tension and great sensitiveness to touch as though suppuration was impending, unusual prostration, fretful and impatient.

Dermatitis calorica (burns, frost bites).—Indicated in *burns* of second or third degree attended with great prostration, corrosive soreness, sensitiveness to touch, hemorrhagic or gangrenous appearance of portions of affected parts, when scars remain a deep red color and tender to touch.

Chilblains or *severe frost bites* call for sulphuric acid when the parts are a dark purple color, sensitive, burn or feel as if scalded, and show a tendency to become gangrenous, and some general indications for this drug are present.

Dermatitis traumatica.—When an ordinary injury of the skin inflames and becomes very sensitive, blackish and threatens to mortify, sulphuric acid will sometimes arrest the process.

Dermatitis gangrenosa infantum among other forms of gangrenous inflammations of the skin is very likely to present general and local indications for sulphuric acid.

Pruritus.—Generalized, *worse* after midnight, in open air or in cold, wet weather. Especially in women at climacteric, associated with flashes of heat and general anæmia; old people of both sexes who are fretful, impatient, etc.

Purpura hemorrhagica.—Loss of dark blood from mucous outlets; bluish colored ecchymotic spots on forearms or elsewhere. In the cachectic and emaciated who are easily exhausted and feel *sensations* of tremor without trembling.

The third decimal attenuation usually gives satisfaction in cases of skin disease calling for this drug.

TARENTULA CUBENSIS

Carbuncle, Anthrax maligna.—This spider poison is adapted only to the most severe types of inflammation and pain; deep purplish redness of the affected area with sharp stinging or burning pains; early and persistent prostration, diarrhoea or other symptoms of systemic infection.

The sixth decimal attenuation is a suitable dose.

TELLURIUM

This metal in medicinal form acts prominently on the dermal tissues, giving rise to offensive perspiration, papular and vesicular *lesions*; the latter tend to assume circular or ring shapes and to spread at the periphery. Exudations are irritating and are apt to become offensive. The most characteristic *locations* are back of the ears, occiput, at or near hair line, face, inner side of extremities and on any part subject to free perspiration. *Sensations* may vary widely; itching, pricking, smarting and burning are most common. *Aggravations* occur after retiring at night, while at rest, in cold weather and from friction.

Eczema.—Papular, vesicular or crusted in form, located on ears, back of ears, at occiput or at other points of section named, persistent in course and extending to adjacent skin by contact of the discharge therewith, may be frequently cured with tellurium. Occasionally it will be found indicated for circular patches of eczema wherever located.

Herpes.—After free and offensive perspiration, or critical sweats, soreness, pricking or itching, *worse* from friction.

Dermatitis herpetiformis.—Distinct herpetic type, with circular groups of vesicles on various parts. Preceded or attended with free or offensive sweat. Itching, pricking or smarting *sensations, worse* where skin perspires, at night in bed, from rest, in cold weather and on one side.

Tinea circinata, T. tonsurans.—Ring shaped lesions on hairy or non-hairy parts; offensive odor from affected parts or of the perspiration; pruritic sensations, *worse* after exposure to cold, while at rest and at night.

Tellurium acts well on the skin in the sixth decimal and it is seldom necessary to change the attenuation.

TEREBINTHINA

Oil of turpentine either by contact or through nerve irritation acts prominently on the mucous membranes (especially of the urinary tract) and on the skin, causing congestion, inflammation or hemorrhages. On the skin erythematous or hemorrhagic macules, papules and wheals may appear, and occasionally vesicles and pustules develop therefrom, all characterized by persistency.

Sensations are often severe and consist of burning, smarting, stinging, tension, soreness and itching which may persist after eruption has disappeared.

Urticaria.—Papules or wheals situated on erythematous patches, localized or generalized, attended with pruritic *sensations*, which persist in the interval between the eruptive outbreaks or with unusually persistent lesions. Especially when associated with urinary diseases or affections of other mucous membranes.

Purpura hemorrhagica.—Intestinal or urinary hemorrhages and circumscribed extravasations of blood into the skin. Persistent soreness of lesions or parts affected, which lesions remain unchanged or very slowly resolve, attended with general prostration.

Herpes labialis.—Associated with affections of the respiratory or digestive tracts indicating turpentine.

Only a low attenuation, first to third decimal, is of service in skin diseases.

THUJA

Arbor vitæ acts chiefly on the mucous membrane and the skin, producing conditions which resemble the effects of locally inoculable poisons, especially those which are prone to cause papillary hypertrophy. Admitting the etiological relation of early disease due to infection to late manifestations of a different nature, this drug may be found adapted to the cure or relief of a variety of cutaneous conditions, chiefly designated by Hahnemann as *sycosis*, and now believed to be due in whole or part to the immediate or remote effects of the action of bacteria.

The skin *lesions* may be macular, vesicular, papular, tubercular, pustular, or squamous, but are very prone to develop from these or primarily warty or fungoid excrescences which bleed easily. *Location* is not important, though on or about the head, genitals and arms are said to be characteristic. There may be an absence of *sensory* disturbance or any degree of itching, stinging, crawling, sticking, biting, burning, etc. When present they are likely to be *worse* in the morning, evening, from rest, cold, stimulants, tobacco, washing, and *better* from warmth, open air, after appearance of menses or increase of other physiological discharges. This drug acts best on thin persons of the brunette type.

Hyperidrosis, Bromidrosis.—Sweat on feet; inner side of thighs, genitals; *worse* on toes and at night; with dryness of the hands; sour smelling almost every night. Has cured extremely fetid sweat of the feet, profuse sweating of perineum, and of uncovered parts (hands and head).

Acne simplex and indurata.—Papules, tubercles and pustules on face and neck, *worse* between eyebrows; lesions bleed easily on rubbing or scratching; when secondary to other cutaneous affections; worse during menstruation or any form of dissipation.

Alopecia prematura.—Hair comes off of vortex, which is sensitive to touch; scalp feels shrunken and hard on temples and forehead; following vaccination or other inoculable affections.

Atrophia unguis.—Tearing in sides of nails; voluptuous itching between toes; with functional or inflammatory affections of the nerves of leg; when secondary to infectious diseases.

Vaccination eruptions.—Thuja is the most common remedy for the various forms of eruption consecutive to inoculation with vaccine virus, and not infrequently for the more remote disturbances of the skin which appear to bear some relation thereto. It is especially adapted to the cure of vaccination eruptions which become papillary or fungoid, bleed easily or profusely and are situated chiefly on the covered portions of the skin. Sensations and their modalities are not important in these cases.

Tuberculin and anti-toxin eruptions are usually ephemeral in character. When persistent thuja should be considered as a remedy.

Eczema calling for thuja can hardly be designated by lesions. It is more often vesicular or squamous, attending with itching, biting, tingling or burning sensations and sensitiveness to touch; in chronic cases becoming hypertrophic and little influenced by ordinary treatment. It is especially valuable in some cases of eczema with a history of syphilis some years previously (or in near ancestors), of aggravated or unusual vaccinia varicella, or other eruptive disease attended with purulent formations or discharges from the skin or mucous outlets. In such cases other indications for the drug should be always sought for and considered in the choice of a remedy.

In **psoriasis** probably due to early or hereditary effects of syphilis to effects of vaccination or secondary to other cutaneous disease thuja should always be considered as a probable remedy even in the absence of other indications for it.

Ichthyosis hystrix has been greatly benefited by this drug.

Herpes progentalis.—Persistent or recurrent, especially before menses, *relieved* when flow begins. In either sex when outbreak is apparently excited by cold, stimulants, suppressed perspiration and attended with stinging, sticking, itching or burning *sensations, relieved* by warmth, open air and free perspiration or other secretions.

Pemphigus foliaceus, P. vegetans.—Painful vesicles and ulcers on the tongue; aphthæ and ulcers in mouth painfully sore to touch. Vesicular lesions which rupture and discharge a lymph-like fluid and have yellowish crusts. Fungoid excrescences which bleed easily on touch. Symptoms *worse* during rest, cold, alcoholic stimulants, tobacco, *relieved* by warmth and in the open air.

Impetigo contagiosa, Ecthyma.—Pustular or ulcerative lesions following vaccination or other inoculable affections; thin, dark complexioned and ill humored subjects; symptoms *relieved* by warmth and while in the open air.

Lupus vulgaris, Tuberculosis verrucosa.—When dating from vaccination; warty or fungoid lesions which bleed easily; symptoms generally *worse* from cold, tobacco, stimulants, washing, *better* from warmth and in the open air; mental depression and irritability.

Syphilis.—Primary sore, with stinging, sticking or burning sensations; early or persistent *secondary* moist lesions on genito-anal regions or mucous membrane; exuberant, warty or cauliflower-like moist growths; dark, thin or depressed subjects; general or local *aggravations* in the evening, from cold, stimulants, tobacco, *ameliorations* from free action of the bowels, kidneys, warmth and open air.

Rhinoscleroma.—Indurated swelling about nose (left wing); in individuals who have been subject to inoculable eruptions at different times, near or remote.

Verruca.—Moist, sensitive or bleeding warts of all shapes which apparently develop or continue to multiply by inoculation of the secretion or blood from earlier lesions of a similar or different nature.

Verruga.—Papular or tubercular lesions developing in raspberry-like excrescences and tending to ulcerate. Probably curative when general symptoms and modalities resemble thuja.

Thuja may be given in the sixth decimal or a lower attenuation. In diseases characterized by marked pathological change or growth the lowest attenuation is often required.

URTICA URENS

The stinging nettle taken internally produces similar effects on the skin as arise from its local application. These are mainly sensory and vasomotor in nature, and consist of circumscribed, œdematous swellings or nodules, bluish shining redness, and small vesicles, sometimes becoming confluent, with *sensations* of heat, itching formication or numbness. An annual recurrence of symptoms is said to be an indication for this drug.

Miliaria.—Heat in the skin of face, arms, shoulders and chest, with formication, numbness and itching; transparent vesicles filled with serum and looking like sudamina on upper part of body as far as navel; with more or less œdema of the skin; recurring every year; from idiosyncrasy to some article of food.

Erythema multiforme.—General heat and fever, aching pains in arms, wrists and fingers, itching swellings, lumps and red spots over fingers, recurring annually.

Dermatitis calorica (burns).—*Urtica urens* is occasionally indicated in burns of the first degree associated with greatly diminished or suppressed urine; considerable swelling of the parts which sting and burn and are somewhat *relieved* by pressure.

Pruritus.—Intolerable itching or formication of genitals or perineum, periodic or annual in occurrence, especially when due to or aggravated by some article of food.

Urticaria.—Generalized following the use of shell-fish or some food for which there exists an individual idiosyncrasy. Intolerable itching and burning.

Angioneurotic œdema.—Bluish-white swellings of large size, attended with pruritic sensations, especially when traceable to the toxic effect of some food or other substance.

Herpes labialis.—Fever blisters attended with *sensations* of heat and itching. Associated with catarrhal affections of the throat or stomach accompanied with feverishness.

Urtica urens can be given in the third decimal attenuation for its effect on the skin in most cases to which it is adapted.

VESPA

The poison of the wasp's sting acts on the peripheral nerves and peripheral nerve centres, causing vaso-motor disturbances, especially in the skin and mucous membranes. The effects vary widely in degree according to the susceptibility of the individual, as is likewise true of the toxins of disease. The pathogenesis of vespa is sufficiently similar to some vaso-motor affections of the skin to suggest it as a remedy in atypical cases. It has caused an outbreak on the skin of macules, papules, tubercles, wheals, swellings and secondary desquamation, *located* chiefly on face, head, neck, hands, arms, front and back of chest, but can be excited anywhere by scratching; attended with moderate chills and fever, aching, burning, itching, stinging, soreness and tenderness. *Sensations* are temporarily *relieved* by bathing with vinegar and sometimes by cold water.

Erythema multiforme.—Anomalous cases which resemble urticaria. Lentil-shaped, pinkish spots on hand and forearm, redness and swelling of ears and eyelids—redness extending to neck and head, with burning pain and tenderness, *relieved* by bathing with vinegar and salt or cold water.

Furuncle.—Generalized boils or abscesses over the whole body causing emaciation; rapidly developing crops of boils attended with febrile symptoms; general aching, local stinging, burning, soreness and tenderness, temporarily *relieved* by bathing with vinegar or salt and vinegar solution.

Vespa should be given in the second, third or higher decimal attenuation.

VINCA MINOR

This drug has produced symptoms indicating irritation and passive hyperæmia of the surface tissues of the head and face, accompanied with disorders of secretions and sometimes consequent inflammation.

Seborrhœic dermatitis.—Of the scalp of infants, with offensive odor; itching, *worse* from rubbing and scratching, sometimes *relieved* by warmth; crusta lactea.

Plica.—Matting of the hair; moist eruption on scalp, with vermin, especially itching at night, with burning after-scratching.

Alopecia areata or prematura.—Heat in the scalp, with loss of hair; baldness, followed by a growth of fuzzy hair; with pricking, biting, crawling or itching sensations, *worse* from scratching; better from warmth of bed.

Sero-purulent eczema of the scalp, matting the hair together, emitting foul odor or crusted forms on the scalp or face almost as offensive have been cured with vinca.

Vinca should be given in a low attenuation, first to second decimal.

VIOLA TRICOLOR

The action of this drug on the skin is like that of vinca, deranging the secretions and inflaming the tissues of the scalp and face. The eruption is acute in type and course, usually resulting in sero-purulent exudation which dries into gum-like crusts, crack and give exit to a tenacious yellow fluid to in turn solidify, and, if on the scalp, glue the hair together. Absorption of the morbid product often causes the neighboring glands to swell. The secretion of the urinary tract becomes changed so as to resemble in odor the urine of cats. *Sensations* of itching, stinging, biting, crawling or cutting are usually pronounced and are always *worse* at night.

Eczema of the face or scalp with sero-purulent exudation, gum-like crusts, and intolerable pruritic sensation at night, which are somewhat *relieved* by scratching may be sometimes cured with viola tricolor.

Impetigo contagiosa.—Groups of vesico-pustules on face or scalp drying into gum-like crusts which crack and give exit to added secretion; on scalp

thick crusts matting the hair; aggravated cases occurring in winter, with itching at night; glandular swelling; cat-like odor of urine.

Sycosis.—Early stage; sudden crops of closely situated pustules drying into yellowish, gummy crusts; attended with itching, biting or crawling *sensations*, worse at night and in cold weather.

Viola acts best in a low attenuation, first or second decimal.

VIPERA

This serpent poison seems to act especially on the blood, lymph and their respective vessels causing conditions of localized congestion or inflammation and a peculiar sensitiveness to pressure of circulation in the affected parts, manifested by a bursting sensation.

Purpura.—Livid or blackish spots on limbs or black petechiæ with a sensitive skin, and a *bursting sensation* as though blood-vessels were over-distended when parts are put in a dependent position.

Furuncle, Carbuncle, Anthrax, Erysipelas.—Early congestive or inflammatory stage of boils, carbuncles, etc. Situated on extremities or dependent parts, and in which a bursting or painful *sensation* is felt when the blood gravitates to the part, and *relief* is experienced by elevating the part involved.

Lymphangioma.—Affections of the lymphatics which become somewhat painful when the lesions or vessels are most distended.

Vipera should be given in the twelfth decimal attenuation every two or three hours to relieve the more urgent symptoms.

ZINCUM

Zinc acts on the cerebro-spinal centres and on organs and tissues through the connecting nerves; general and local nutrition suffers, paralytic and paræsthetic symptoms are often prominent. On the skin offensive perspirations, macular, papular, vesicular and pustular *lesions* may appear from peripheral nerve irritation. Dilated capillaries or varicose veins may be concomitant and fissures secondary effects. *Location* of cutaneous disturbances may be general, but are more likely to be seated in the flexures of the joints, folds of the skin or in regions abundantly supplied with nerves. *Sensations* are marked and characteristic and may occur without objective symptoms; crawling, creeping (under or on the skin), itching, burning, sticking are the most common. These are worse in the lower extremities and hands, in the evening and at night from wine, scratching (or the sensation appears at another point), and in the open air; *relief* may be given by rubbing, pressure and on the appearance of sweat.

Bromidrosis.—Offensive sweat on feet; sour smelling with sticking *sensa-*

tions or formication; *worse* at night, from wine; when other symptoms subside with appearance of sweat; with nervous depression from mental strain or sexual excitement; with muscular twitchings at night.

Acne.—Papules and pustules on face and shoulders, with dark bluish-red areola and pus also dark colored; *worse* from alcoholic stimulants; only in neurotic or anæmic cases with symptoms corresponding to zinc.

Neurotic eczema occasionally calls for zinc by the presence of its characteristics. It is especially adapted to the anæmic neurotic, with fidgety, changeable disposition, in whom the sensory disturbances in the skin have preceded the outbreak of an eruption and the latter are located on the flexures. Paralytic constipation and general muscular twitching are good concomitants.

Pruritus.—Of vulva or of legs and feet, preventing sleep. Crawling, biting or itching *sensations* in the parts, *worse* after dinner, from wine, rest, heat, in evening and at night, *better* from rubbing, pressure and while eating. Muscular twitching.

Prurigo.—Itching in non-eruptive as well as eruptive parts with shifting sensation from scratching. Varied pruritic sensations *worse* at night, from heat, rest after meals, *better* from rubbing, while eating or when agreeably employed.

The sixth decimal is a suitable dose for most cases, but zinc occasionally acts better in a lower attenuation.

1. The first part of the document is a list of references.

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